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THE NEW ORLEANS

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FOR JULY, 1857.

ORIGINAL COMMUNICATIONS.

ART. I.—*Historical and Statistical Observations on Cholera:* By BENNET DOWLER, M. D.

THE first great cholera epidemic, which commenced in India just forty years ago, progressed westwardly, with several haltings and irregular oscillatings to and fro. Its dynamical force or velocity was, for the most part, at the rate of one degree of longitude monthly, and having reached Paris, Quebec, and New Orleans in 1832, and Havana and Mexico in 1833, not to name other places, its consternating cycle of desolation seemed soon after to be nearly completed, although it still lingered in some places, and, subsequently prevailed with great severity, in Berlin, Naples, etc. In the meantime, at its original point of departure, in the East, many millions had fallen victims to its ravages.

After ten years of comparative exemption, epidemic cholera reäppeared in India in 1843, and pursuing, as previously, its westward route, it reached Russia in 1847, and central Europe the year following, as will appear in the sequel.

In realms occidental cholera has been, in its features, marches, oscillations and temporary declinations, identical with that of the Orient, where it has long reigned as the supreme destroyer—the impersonation of Death.

Cholera, in our day, is what the "*Great Mortality or the Black Death*" and the "*Sweating Sickness*" were in the fourteenth, fifteenth and sixteenth centuries in the old world. Compared with yellow fever itself, cholera appears to be the more formidable of the two, and, although a newer pestilence, it has severely smitten the present, and will probably descend to after generations.

At an early period in the second decennium of the nineteenth century, thanks to the British practitioners in India, descriptions of this monster-malady were given, so faithfully and graphically, that throughout its western progress in Europe and America, physicians were able to recognize it at once, though prejudice, interest, and the wish to escape a visitor so unwelcome, have often combined to produce popular incredulity for a time, until the truth became too overpowering to admit of contradiction.

Upon the Ganges and the Euphrates, the Nile and the Volga, the Seine and the Mississippi, the Garrone and the Tagus, the Rhine and the Guadalquiver, the Rio Grande and the Sacramento—at Alexandria, Moscow, Warsaw, Berlin, London, Paris, Lisbon, Rome, Naples, Madrid, Montreal, Quebec, New Orleans, St. Louis, Havana, Mexico, and places too numerous to mention, this malady has presented no marked diversity under the most varied conditions of climate, topography, civilization and race.

Epidemic cholera is virtually a new disease. Anterior to the early part of the fourth decennium of this century, it was practically unknown in the West, although descriptions of, or allusions to it, may be traced in the ancient authors, including Celsus.

If this disease had ever prevailed in Europe, until recently, medical historians, to say the least of their short-comings, have failed to transmit to their posterity complete histories of its character and movements. These omissions of our predecessors place them in an unfavorable contrast to the numerous epidemological writers and historians of the nineteenth century. Even as late as the eighteenth century, little or nothing has been left on record in this behalf, excepting a few notices, which are meagre, vague, and altogether unsatisfactory.

The non-prevalence of this malady as an epidemic, except in a few regions, at the present, and its occasional recurrence in isolated cases along its late routes, indicate this as a proper time to review its past and prepare for its future, it may be, impending invasions, and the more so, because its cause, pathology, and treatment are little understood, although in this behalf, the present paper promises nothing new or satisfactory, beyond a few suggestions, including allusions to facts of a significant character.

A knowledge of the pathology of cholera is an important point of departure for the study of a vast number of kindred maladies of the stomach and bowels, which cause a large proportion of the current mortality of every country and climate. If the field of experience, though extensive, has produced but a scanty crop, is this not a good

reason for renewed effort to accumulate or review facts in order to comprehend their import? Facts may be destitute of novelty, but who can say that they are without utility, either present or prospective, explicable or otherwise? To agitate, to reïnvestigate, and to seek the truth are duties required of the physician.

That epidemic spasmodic cholera should have been for centuries almost exclusively Asian in its *habitat*, or that it should have extended westwardly to Europe and America a quarter of a century ago, no one has been able to explain satisfactorily. For ought that science can say, it ought to have originated and reigned upon the banks of the Mississippi or the Amazon, and have passed thence to the Nile, to the Euphrates, to the Indus, to the sacred Ganges and to the plains of India.

The beginning of the historic period found civilization in the Occident, the glories of which at length faded away. A long and still pervading darkness settled in the East. In the meantime, the arts, sciences and religion progressed to the West, where they fixed their abode many centuries ago, and where they shone, and still shine with increasing brightness. Is not the law of compensation operative herein? If the East imparted its blessings of civilization to the West, has not the former desolated the latter with the greatest pestilence ever known, namely, the Asiatic Cholera, which marches in the face of the wind, over burning plains, snow-covered hills, morasses and treeless and waterless deserts?

The Black Plague of the fourteenth century pursued the same westering path as did the cholera of the present century. The deteriorating influences of the latter not only continue, but, like a smouldering volcano, occasionally break forth into epidemics, as of late in southern Europe and South America.

It rarely, if ever happens that epidemics, as those of cholera, influenza, the plague, and epidemic small-pox travel from continent to continent eastwardly. Is there not some cosmic cause for this, which has hitherto eluded ætiological research? May not the diurnal or annual dynamics of the earth in its path through space be concerned in giving this direction to the material and direct cause of epidemics?

Influenza, *la grippe*, or catarrhal fever, which many regard as the invariable precursor of cholera, is, of all epidemics, the most rapid, frequent, and all-pervading, and withal, its history has been more fully or at least more frequently recorded during the last four centuries, than, perhaps, any other epidemic. Influenza appears to have lost much of its malignancy, not its universality, during the cholera æra. Anno 1580, influenza raged throughout Asia, Africa and Europe, with a ma-

lignity approximating that of the plague. Its progress has been generally, like that of cholera, westwardly.

The English National Cyclopædia says that "this disease has often visited London with great severity. In 1729 it was very fatal in London. Lowe says that more persons died of it than at any one time since the plague of 1665. One thousand died weekly of it in the month of September. In 1847, its fatality was also very great, considerably above one thousand weekly dying for many weeks together." Nevertheless, this disease in modern times seldom proves fatal. Whether it be always a forerunner of cholera is questionable. It certainly is not always followed by cholera. Their apparent relations, ætiological and pathological, are however, worthy of a thorough investigation. Both have their principal seats in the mucous tissue, the one in the respiratory—the other in the gastro-intestinal membranes. Their topographical dynamics and the simultaneity with which both attack vast expansions of territory, afford a remarkable parallelism; while, on the other hand, their symptomatic phenomena and their pathological finalities not only fail to exhibit any appreciable analogy, identity or connection as cause and effect, but stand out in strong relief as antithises.

It may be proper in this place to glance at their possible affinities, as deducible from the mortality statistics of the United States for the year ending with the 30th of June, 1850, which show, that among 323,023 deaths from all causes, 253 resulted from influenza, or about 1 in 1,300. The influenza proved mortal chiefly in the spring. Much more than half of the cholera mortality occurred in the summer. Thus, by transferring 200 deaths from the list of 331, the season of which was unknown, and adding this number to that of summer, this season is chargeable with 18,443 deaths from cholera, out of 31,506, for the whole year. In this year, at least, the maximum mortality of influenza was directly followed by the maximum mortality of cholera.

A few remarks upon the affinities between cholera and other kindred affections, may here be added. It will be seen, upon analyzing the mortality statistics of the United States for the year ending June 30th, 1850, that in the spring, when cholera gave only 1,636, diarrhœa gave but 652; but when, in summer, cholera gave (as corrected) 18,443 deaths, diarrhœa had increased about threefold, that is, to 1,766. In autumn, when the cholera had declined to 9,869, diarrhœa had still gone on increasing to 3,176, or nearly five times greater than either the spring or winter mean. Hence, diarrhœa was minimized before the cholera was fully developed. Diarrhœa increased rapidly with the increase and during the declination of cholera. Both diseases were repressed in nearly an equal ratio during the spring and winter.

The parallelism between dysentery and diarrhœa is remarkable, the former sustaining the same dynamical relation throughout the four seasons, as the latter did in regard to cholera, the maxima of diarrhœa and dysentery being postponed to the autumnal season. This topic will probably be resumed in another page.

Whether there be any precursory disorder of the stomach and bowels before the irruption of an epidemic cholera, as well as before an individual attack, is not easily determined by exact and extensive statistical data extant, though the affirmative of this question has been prevalent, and is probably not well founded. Derangement of the alimentary canal is common during cholera, even among those not attacked by the epidemic in the usual form.

It is doubtful whether the ordinary causes of mortality, other than bowel complaints, are less active after the prevalence and subsidence of cholera. Bowel affections are often among its sequelæ as already stated.

The influence of cholera upon all the causes of mortality for the fourth, fifth and current decennial periods of the present century, as compared with the first, second and third, is a problem deserving of statistical investigation.

The data which have been or will be enumerated, appear to show that the ordinary causes of mortality are more active during the prevalence of cholera than at other periods, particularly in reference to causes seated in the alimentary canal. Thus, for example, in the epidemic cholera of New York in 1849, in Philadelphia in 1848–9, and in most other cities wherein data have been recorded, diseases of the bowels, other than cholera, marched with the latter, often in an almost equal pace, rising, in New York, from 28 per week to 297, averaging 250 deaths for eight weeks, during which cholera was at its culminating period. In New Orleans in 1848–9, diseases other than cholera increased with the increase of the latter.

It is believed that, if time permitted the making of an extensive numerical analysis of the New Orleans bills of mortality year by year, it would appear that neither 1847 nor 1848, anterior to the irruption of cholera, was remarkable for the fatality arising from bowel-diseases at least.

In 1849, the number of deaths from cholera in New Orleans, was, according to the official report, 3,176, which is nearly one-third of the total mortality for that year, without including cholera morbus, 109 ; diarrhœa, 234 ; dysentery, 335 ; cholera infantum, 40. These latter amount to 719.

Throughout the year 1850, cholera prevailed in the city to considerable extent, with the exception of the summer months, the mortality from which was nearly half as great as that of the year preceding. During autumn, it suddenly appeared in the city of Sacramento, California, destroying, according to Dr. Logan, in twenty-eight days from the 19th of October, 364 person in a population of six thousand, a ratio of nearly one in sixteen.

It has been often asserted, that the fear of cholera is a principal cause of exciting it and of rendering it mortal. But on the other hand, it may be said with more probability, that fearlessness of cholera and the consequent neglect to attend to its first symptoms are very common, and much to be deplored. Besides, the insane, who have no fears of the disease, are the most liable to suffer and die. In the alms-house of Baltimore, in 1849, where ninety-nine, more than one-sixth of the inmates, died of cholera, *all* of the insane of the lower story, seventeen, died.

The malignancy of cholera does not appear to be augmented in a ratio to the density of the population. Indeed, in many country places, on plantations, and in villages where the disease has appeared, the proportional mortality has often exceeded that common to great cities. The recent epidemic in France was severest where the population was least dense. The routes to California, through vast prairies, arid deserts, and mountainous regions, are strewed with the bones of emigrants who perished from this disease a thousand miles from houses, homes and crowded, filthy cities.

The opinion which has been expressed by some practitioners of ability, that cholera never attacks an individual a second time, is, according to my experience, erroneous. On the contrary, in some cases at least, one attack during an epidemic, if it should not predispose to another during the same or a subsequent epidemic, affords, for the remainder of life, no immunity. During the first and second great cholera epidemics, (1832, 1848,) I have known two, three, and four attacks in the same individual—though such examples are very rare. Indeed, some persons, owing, it may be, to some peculiarity of constitution, who have suffered one attack, ought to be doubly cautious upon the appearance of another epidemic. May not one attack of this disease leave, in some constitutions, a choleraïc diathesis analogous to that which an intermittent fever leaves in many cases? The difference between cholera and yellow fever, as it respects susceptibility to subsequent attacks is great. The latter affords a protection which the former cannot.

Does one epidemic afford protection to a community against the

frequency, universality, and fatality of subsequent epidemics? This question which should perhaps be answered by, *No*—deserves a more thorough investigation than the limits of this article will permit. Yet something may be said on the other side of this question.

In New York, the second great epidemic, that of 1849, was much less fatal, or rather less general than the first, namely, that of 1832, and the same is true of New Orleans, Paris, and some other places, both in America and Europe. The first cholera epidemic at Paris, destroyed, according to the official report, 18,402, while that of New Orleans was incomparably greater in proportion. Some calculations represent the mortality from cholera, in Paris, as more than the double of that here mentioned.

The cholera lingered long in Paris in 1854, but its aggregate mortality was small as compared to former epidemics, or to certain small towns, villages, and isolated dwellings in certain rural districts. But a small mortality generally represents in the vocabulary of cholera, a small number of attacks.

The statistics of the cholera which prevailed in 1854–5 upon the western coast of Africa, and Asia, and in central, southern and peninsular Europe, and that now prevailing in Demarra, have not been fully reported, or if reported are not accessible. Hence the behavior of cholera as compared to its former invasions, in both urban and rural localities, might be difficult to ascertain definitely by reliable statistics.

The treatment of cholera may be here alluded to, not with a view, however, to illustrate its *methodus medendi*, but in order to glance at its bearings in a numerical and historical point of view, without following an exact chronological order and without giving copious data.

The mortality statistics of cholera will show, it is believed, that the *methodus medendi*, has been little improved since the first cholera invasion. In the hospitals and almshouses (*hospices civils*) of Paris, the ratios of the deaths to the attacks, in 1832, 1849 and 1854, for each 100, were 47, 55, and 52.

In 1855, in Vienna, among 5,500 officially reported cases of cholera, half died. Whether the ratio is higher or lower in the United States is not easy to determine, as the statistical data in this country are not obtained by that rigid governmental procedure which obtains in some European countries, as in France, Germany, etc. In the cholera of 1848–9, the discharges from the Charity Hospital of New Orleans numbered 735, the deaths 1,122, for this disease. In 1850, the discharged cured, numbered 189, the fatal cases 530, from cholera in this institution.

In 1849, the population fluctuated in St. Louis, from 70,000 to 50,000, in which number 4,557 died of cholera, the whole mortality from all causes having been 8,603.

In 1848, cholera prevailed in St. Petersburg; by the 24th of June, one thousand cases had occurred, more than half of which proved fatal. Three months later the number of cases had multiplied to nearly 26,000, while at Moscow, the cases exceeded 16,000. In the meantime, "in the Russian dominions in Europe, amongst a population of 54 millions of persons, 1,427,836 cases of cholera had been reported, 570,700 of which had terminated in death, 792,591 had recovered, and 64,545 remained under treatment." In St. Petersburg and Moscow, according to the then current reports, more than half of the cases ended fatally, while at Cairo, the proportion of deaths to the cases was incomparably greater.

France, the United States, peninsular and southern Europe, have suffered from cholera more, in proportion to population, than densely populated Great Britain. The first cholera cost France 95,000, while, in three years from the invasion of the epidemic, the number of victims in Great Britain was but 30,000, which is much below the number for one year in the United States, as reported in the mortality statistics for the year commencing with the 1st of July, 1849, during which 31,506 died of cholera.

The third invasion of Paris commenced at the end of the first week in November, 1849. It reäppeared in 1853. In Paris, New Orleans, and many other places, the returns of cholera as compared to its first visit, have proved less destructive, because less general and extensive. But the proportional mortality to the number of cases has undergone no marked deviation!

If the treatment has been neither more successful nor fixed, the universality of the later invasions of the epidemic has been considerably limited as to the number of attacks. This limitation is, however, more apparent than real, for, although at many places, the number of attacks at any one time during the last ten years may, be less than during the year 1832, yet for these last ten years in Europe, and nearly as long in America, cholera has often been epidemic and perpetually sporadic to some extent, so that there has, in reality, been no great preponderation of exemption in favor of this latter period. Thus the first cholera of New Orleans, the most severe that ever visited the city, killed its thousands, and soon died out itself, and was almost forgotten until 1848, since which it has prevailed several times, every year having presented sporadic cases. On the day of writing these lines, late in May, 1857, I have heard of several cases. Moreover, during the last ten years, the small

towns, villages and plantations, have suffered more than formerly—more, at least, than the large cities themselves, particularly in France.

Sanitarians have not yet explained, by means of their theory, why London, which to a great degree, lies flat upon the alluvium of the Thames, in some places below high tide; why London, often enveloped by fog, always in smoke, being withal the largest and most densely inhabited city in the world, is at the same time one of the most healthy—one where cholera is the least severe. Had this disease prevailed in that city as it has often prevailed in towns and on plantations in the United States, a single epidemic must have swept away three or four hundred thousand souls in a few days. Public sanitary measures in that city date long subsequent to the cholera invasion.

In dwelling on these numerical details, as illustrative of the history and treatment of cholera, withont wishing to over-rate the efficacy of medical treatment, it may be proper to say, that statistical evidence is, and must be far more unfavorable to the skill of the medical faculty in appearance than in reality. Seeing that statistics show that half of the cases of cholera prove fatal, it may appear presumptuous and false, to assert that in a great majority of cases, cholera may be cured by simple means, provided that all cases of diarrhœa during epidemic cholera be considered and treated as cholera. What is usually considered cholera erroneously excludes this, its first and curable stage. Its advanced, and generally incurable stage, in which medicine cannot be retained, or if retained cannot be absorbed, or if absorbed cannot often cure, is that which alone is designated as genuine cholera. Of either the fully developed or the collapsed stages of this disease, M. Magendie's definition is scarcely an exaggeration: "Cholera," said he, "begins where all other diseses end, that is, in death and cadaverization." The first treacherous stage, lasting perhaps but one or a few hours, may deceive the physician himself, as it has tens of millions of the entombed,

"From Indus to the Pole."

Here, again, reservation and qualification will be necessary, inasmuch as it will be found, that the so-called premonitory or diarrhœal stage, which often lasts many hours and sometimes days, does not, as was once supposed, invariably and for a considerable time precede, fully developed cholera. This disease is sometimes so suddenly developed, the primary purgings are accompanied with sinking, pulselessness, coldness, cramps, asphyxia, and a speedy paralysis of the absorbents. The number of these deplorable cases has been greatly underrated, as I had ascertained from observation in New Orleans. While writing this page, the British and Foreign Med. Chir. Rev. was received for April, 1857, from

which it appears that the celebrated micrologist, Prof. Lebert, of Zurich, in his recent work on cholera which prevailed in Switzerland, shows the absence of this premonitory or prodromic diarrhœa, in the epidemic of 1854 and 1855, in fully one-third of the cases. This, however, is not the general rule, but the exception, as statistical data will show.

The first as well as the second great invasion of cholera in the western hemisphere, seems to indicate that its cycle is seldom completed in a single season, its deleterious influences continuing with more or less intensity biennially or triennially, or longer. In the east, where it seems to have been indigenous for ages, it raged during the last year in several districts of India, and the Cape Verde Islands, outliers of tropical Africa.

The second cholera, that of 1848, lingered longer, though it was less mortal than that of 1832, and like the latter, extended itself through the rural population, where on many plantations its malignancy was incomparably greater than it was in the city.

The appearance of cholera in the city of New Orleans, has hitherto been a precursor of its advance upon the rural districts. In 1832, as well as in 1848–9, these urban prodromes manifested themselves.

Surgeon Lawson, U. S. A., now Surgeon-general, was resident in this city in 1832. In his Army Report he says, that New Orleans was the first and last point attacked: "So fearfully rapid was the pestilence in its progress, that in less than forty-eight hours it reached the lowest plantation on the Mississippi, desolating almost every spot inhabited by man. In the State of Louisiana, the epidemic exhibited itself in its most malignant character."

Yellow fever and cholera, though apparently in no wise necessarily connected, may exist in immediate succession, or even simultaneously blending with as well as displacing each other.

The second quarantine report upon cholera, presented to parliament in 1852, says, "Dr. Gavin states, that cases occur during the yellow fever epidemic now prevailing in Demerara,* some of which have come under his own observation, in which the symptoms simulate those of cholera so closely, that, in a cholera epidemic, they would be called cholera." Now, although the symptomatic differentiæ of these diseases are in New Orleans well marked, the presence of the one malady does not imply that the other is absent or not impending.

In the autumn of 1832, cholera appeared for the first time in New Orleans, as an epidemic during the prevalence of yellow fever, destroy-

* The recent mails, May, 1857, bring intelligence from Demerara, that cholera still prevails in that colony.

ing in a few days, according to Dr. Halphen's elaborate report, one-seventh of the entire population; others report 7,000, and some as low as 4,000 deaths from cholera alone.

In 1832, yellow fever commenced on the 22d of September. On the 15th of October it was declared epidemic. Ten days later cholera appeared. Dr. Halphen, whose ashes now repose in the Catholic cemetery, was then a practitioner in New Orleans, and the French Academy, who reported very favorable upon his book, adopt his account, and style this a double epidemic, (*"la double épidémie de fièvre jaune et de choléra."*) In treating this double epidemic, Dr. Halphen found that the antiphlogistic mode which he adopted for the cure of the fever developed the cholera, whereupon he reversed his mode of treatment. With the increase of cholera the fever receded.

Dr. Lawson, then senior surgeon of the army at New Orleans, now Surgeon-general, who was himself a sufferer from this epidemic, says in his official report, that "in the city, the victims of cholera numbered about 6,000, the population being perhaps 55,000."

Surgeon McMahon, U. S. A., resident at New Orleans, in his official report for the three months ending with August, 1833, says: "The yellow fever, or *rather a complication of this disease and cholera*, appeared shortly after the subsidence of the latter. Amongst the citizens, the average mortality from it has been about seventy per day up to this time." Thus 1832 and 1833, as well as 1848 and 1849, were years in which both cholera and yellow fever prevailed in New Orleans.

Without in the remotest degree intending to examine into the causes to which cholera has been attributed, it may be allowable to give, without adopting, the following hypothesis by an ingenious writer—a theory which, however, did not originate with him, but which, in the opinion of not a few able thinkers, is the most probable one yet advanced.

"No conditions of physical change in the atmosphere itself," says Sir Henry Holland, "are known to us—statical, chemical, electrical or other—which afford even a plausible explanation of the phenomena of cholera. The earliest Indian official reports furnish nothing that can be admitted as proof to this effect; nor have the later and more exact observations of Europe better warranted the opinion. No notion of an epidemic constitution (to acquiesce for a moment in a phrase thus vague and doubtful in import) can be of avail against the facts belonging to the history of the disorder—its course, manner and time of progress, and various aspects—as it has spread over the world during a period now nearly forty years, since the occurrence of the earliest known cases at Jessore. The whole resolves itself into this: that the disease in its

most distinct and virulent form, has existed in different places under every possible variety of atmospheric state; and, conversely, that every such variation has existed in a higher degree in the same places, and at all times, without producing the disease. Nor have we the smallest reason, from knowledge or analogy, to assume that any gaseous, mineral, or vegetable matter, diffused in the atmosphere, or exhaling from the earth, could create a disorder thus peculiar, or spread it in a manner to remarkable over the face of the globle. The notion of terrestrial or mineral exhalations, is defective in proof in every case, and singularly inapplicable to the cause and circumstances of cholera. A natural morbid cause or causes, (for which, in default of a better, we must admit the name of *malaria*) may originate locally, and produce various local endemic or epidemic diseases; and of this we have sufficient evidence. But these very circumstances of limitation directly exclude any agent, so generated, as the source of a migrating disease, to which we are unable to assign boundary or limit. Equally inapplicable for the same reasons, is every theory founded on the temperament, habits, food, or other conditions of particular communities. The history of cholera, as followed through different countries and climates, and races of mankind, negatives at once all suppositions of this nature; nor need we follow them beyond the mere statement. Whatever be discovered hereafter, as the cause of the disease, it must be one which has come into existence and active operation within the last thirty-eight years; and which, therefore, cannot possibly depend upon conditions long before existing without the production of any such effects."—(*Med. Notes*, 3d. ed. 1857, pp. 464 *et seq*.)

This able author rejects wholly all existing theories of the origin and diffusion of cholera but that of "animalcule life," ("invisible forms of organic life" "removed from direct observation,") which he advocates as the most rational hypothesis. Here he finds or assumes a "*material poison*" having "*the faculty of reproduction*." Of course "invisible organic forms," that is, swarms of invisible insects would run or fly the most potent quarantine with more facility than visible ones, such as mosquitoes, grasshoppers, and locusts, and the more so as they are, analogically speaking, erratic in their flights, habits and instincts. If these migratory swarms of insects, diffused over millions of square miles, or in patches, could be proved to be the forerunners of cholera, their connection with the latter as its cause would be probable, instead of being as now, wholly conjectural. Of the assumed deposits of *ova* and their vivification and choleraïc sequlæ, nothing has been proved by the aforementioned baronet, who, nevertheless, is an acute reasoner, and consequently, offers this hypothesis as a hypothesis only.

A few general observations upon the supposed contagion of cholera, how inconclusive soever they may be in this regard, will not, it is hoped, be useless, in a statistical point of view, as a development of facts which should not be forgotten.

Cholera in 1848, appeared almost simultaneously at Paris, New York, New Orleans, Memphis, the army on the Rio Grande, St. Louis, and other places, as well as on the Atlantic ocean, among emigrants voyaging from Europe to America. The difference in time did not, perhaps, vary more than ten or fifteen days. On the very day the Board of Health of New Orleans decided that cholera was epidemic in the city, that is, on the 21st of December, 1848, the disease raged among the U. S. troops on the Rio Grande, and in seven or eight days nearly half of the command died. (Dr. Jervis.)

This simultaneity of invasion over land and water, seas and continents, is not characteristic of ordinary transmission from person to person, while it is characteristic of epidemicity, as in influenza, dengue, etc., as will more fully appear hereafter.

If cholera be contagious, the multiplication of railroads and other intercommunication must spread it from its foci, over the entire country with great celerity, and the same remark applies equally to yellow fever and such other diseases as contagionists include in this category. The absolute quarantine of railroads for forty days, still more than ships and boats, will be necessary when any of these maladies shall attack any place on a railroad. New Orleans quarantines against foreign and *à fortiori* against domestic contagion, and, consequently, the people on the railroads and rivers of the valley of the Mississippi ought to adopt the same logic and conduct as it respects New Orleans.

Internal as well as external quarantine should be required and enforced by consistent contagionists. The first cases of cholera should not be sent, as is now the custom, to the Charity Hospital, to communicate a contagious disease to nearly a thousand persons in the hospital as patients and their attendants. Nor should individuals be allowed, at pleasure, to visit patients affected with cholera in private houses, and thence to disseminate a mortal contagion over the city. Special hospitals are required for contagious diseases. In both hospitals and private dwellings, isolation of the patient and exclusion of visitors, are essential as means of preventing the extension of contagion.

If the simultaneous action of cholera over vast expansions of territory, be contrariwise to that of diseases due to personal contacts, or aërial emanations from the sick, so is the occasional but well proved *per saltum* or jumping course of cholera, seeing that in traversing a district,

it repeatedly leaps over one or more neighborhoods to attack others, where personal intercourse could be neither proved nor reasonably expected. A leaping propagation of cholera is not easily explained upon the commonly received malarial theory.

The geography of malaria, of insect life, and of cholera do not coincide in time or place. Cholera has proved severe amid Siberian snows and Scandinavian winters with a temperature thirty degrees below the freezing point, as well as among the supposed malarial regions, as the immense morasses of the Ganges and the Mississippi, which simmer in the hot sun a hundred degrees above zero, and which, too, give life to an exuberance of insects.

Cholera contagionists ought to show the sincerity of their faith and the consistency of their logic by quarantining in all directions, as well against internal as external contagion from intercommunication, seeing that cholera has existed every year, perhaps, either epidemically or sporadically for a quarter of a century, in certain districts and towns in almost every State of this Republic. A case of cholera from Pittsburgh, Cincinnati, Louisville or St. Louis, should no more be admitted into New Orleans by the downward navigation by the river, than by the upward navigation from the sea. Rational quarantine has no up, no down, no north, no south. Neither contagion-bearing goods nor persons are admissible, not even daily tons of mail-matter. The transmission of contagion from New Orleans *to* other cities is a different yet not less reprehensible practice.

Dr. Byrne, a most rigid contagionist, in his late book on cholera, says that "there was not a case of this disease in the United States in 1849, previously to the arrival at New Orleans of a passenger ship from Havre, and one at New York," etc.* These ships were the New York and the Swanton. The former left Havre November 9th, and arrived at New York city December 2d; and the latter left Havre November 2d, and arrived in thirty-nine days at New Orleans, December 11th, 1848. No cholera existed at Havre when these vessels sailed from that port.

These two vessels, the supposed carriers of the second epidemic cholera to the United States, have not only served as points of departure for contagion, but for an exuberance of unnecessary argumentation—unnecessary, because, as will be presently seen, there were sources or

* An Essay to prove the contagious character of Malignant Cholera; with brief instructions for its prevention and cure: by Bernard M. Byrne, M. D., Surgeon U. S. Army; 2d Edit. 1855. A notice of this work of a talented but *ex parte* writer was given in this Journal a few months ago.

foci of well developed cholera in the country at that time, as well as previously.

The English Board of Health, in its report to parliament, in 1852, on the epidemic cholera in 1848 and 1849, has searchingly inquired concerning these supposed contagion-bearers to America, and concluded (as others have) that,

"When they left Havre, cholera was unknown there. No manifestation of the disease had then presented itself in all France. It was committing its ravages in various portions of middle Europe, and had extended nearly to the western confines of Germany, but as yet it had not crossed the Rhine, nor developed itself in a single place in the French territory. The passengers, it is true, were Germans, but they had been domiciliated at Havre for two or three months previous to their departure, and were finally provided with the means of leaving that port by a charitable donation made up for the purpose. They were then placed on board of these ships in a very wretched condition, and suffering from all the privations of poverty and want. They were paupers without means, and dependent on the kind offices of charity for their passage. In what condition they went on board it is quite easy to imagine. The 'New York' had 331 of these poor creatures in her steerage, and the 'Swanton' 280, besides their cabin passengers and crews. No evidence of the existence of the disease manifested itself until these vessels had been many days at sea, and then immediately upon the occurrence of some remarkable atmospheric phenomena."

Dr. Byrne is mistaken in saying "that there was not a case of cholera in the United States in 1849." That was a great year of epidemic cholera. Even 1848 was not exempt from cholera anterior to the arrival of the above mentioned epidemic-bearing ships from Havre. The New Orleans Board of Health reported a fatal case of cholera which occurred between the 19th of August and the 21st of October, 1848. (See this Journal for November, 1848.) The late Dr. Hester, then editor of this Journal, in the March issue of 1849, adduced evidence of the existence of cholera six days before the arrival of the Swanton.

Without going extensively into the statistical history of 1848, it may be proper to mention a few of many data, showing that if cholera be contagious, there was no need to assume its importation as essential to its diffusion in 1848 and 1849. In the January number of this Journal for 1848, the list of deaths includes one from cholera.

Drs. Ames and Boling at the meeting of the Alabama Medical Association, held at Selma, March 8th, 1848, reported a death from cholera in the city of Montgomery. D. Francis Condie, M. D., chairman of

the committee of Practical Medicine for the American Medical Association for 1848–9, quotes and adopts the report of Drs. Talbot and Yandell in the Western Journal of Medicine and Surgery of February, 1848, showing that cases of genuine cholera had occurred in January of that year, in the practice of most of the physicians of Louisville, and, consequently, nearly a year in advance of the arrival of the New York and Swanton, the supposed carriers of the second great epidemic. According to the official statistics of Massachusetts for 1848, the mortality from cholera amounted to 46. The assertion that there was not a case of cholera in this country in 1849, before the arrivals of the Swanton and New York, is erroneous in date, as in 1849, cholera existed epidemically or sporadically in every State of the Republic, as the following data will show.

The following will show whether "there was not a single case of cholera in 1849." These data are not offered simply to refute this statement, but for their intrinsic value in illustrating the geographical dynamics of cholera in that gloomy and eventful year. A glance at the map in connection with the statistics of cholera for that year, will show the erratic course of the epidemic along the great lines of travel diverging from New Orleans, as that of the North-west, and that of the North-east. The latter line, through Alabama, Georgia, the Carolines, etc., suffered very little, the former route severely.

According to the mortality statistics of the Seventh Census of the United States for the year commencing with July, 1849, the deaths from cholera amounted to 31,506. During the same year, cholera morbus, cholera infantum, diarrhœa and dysentery gave a still larger aggregate, so that these allied diseases reach a total of 65,946, much more than one-fifth of the aggregate mortality from all causes for the year, which amounted to 323,023.

During the year reported in the above mentioned census, the mortality from cholera in Louisiana reached to 2,940; Mississippi 587; Arkansas 245 ; California 404 ; Missouri 3,589 ; Illinois 2,059; Indiana 1,418; Iowa 134; Michigan 140; Ohio 5,808; Kentucky 2,030; Tennessee 858; Wisconsin 232; Minnesota Territory 5; New Mexico Territory 7; Utah Territory 82; Oregon Territory 0; Alabama 69; Georgia 17; South Carolina 69; Florida 26; North Carolina 36; Virginia 795; the District of Columbia 27; Maryland 166; Deleware 97; New Jersey 686; Rhode Island 159; Pennsylvania 1,296; New York 5,882 (city 1,742); Connecticut 60; New Hampshire 47; Vermont 31; Massachusetts 1,082; Maine 206.

As already stated, the dynamical affinity of cholera for the great

highways and rivers and western longitudes, is frequent though not constant. Its leapings are irregular and enormous. The first great epidemic cholera had almost died out in the West, when it reäppeared fourteen years ago in India, without having passed from person to person, from town to town, in an eastern direction, across the vast territorial expansions of America, Europe, Africa, Western Asia, and the intervening ocean, seas, and isles. If cholera is caused by emanations from the sick, its propagation, east or west, would be expected to take place with equal facility and celerity, agreeably to all the known facts and analogies of contagion, upon which quarantine laws are based.

The General Board of Health in their second report to Her Majesty on quarantine, say: "With respect to epidemic cholera, we have shown in our first report, by a body of evidence which has not been impugned, and which is generally admitted to be conclusive, that whether this disease be contagious or not, quarantine has had no influence whatever in checking its progress, and that wherever, in the recent course of this pestilence throughout Europe, quarantine was put in force as a measure of prevention, it was speedily abandoned as useless and even mischievous.

"On the first irruption of this pestilence into Europe in 1831–2, every nation successively menaced by it, endeavored to bar it from passing its frontier, by rigorous quarantine and by military cordons, but in every instance without avail. Again the like attempt was made in 1847–8, and again it was everywhere admitted to be utterly ineffectual. Though many medical men in Great Britain had long ceased to place confidence in these expedients, yet the constituted medical authorities appeared still to regard them in some degree as securities; but founded on recent experience, the Royal College of Physicians of London have changed their former belief, have declared an opinion in accordance with that previously expressed by the general Board of Health, and have recorded their conclusion in the following words:

"'Cholera appears to have been very rarely communicated by personal intercourse, and all attempts to stay its progress by cordons or quarantine have failed. From these circumstances, the committee, without expressing any opinion with respect to its contagious or non-contagious nature, agree in drawing this practical conclusion, that in a district where cholera prevails, no appreciable increase of danger is incurred by ministering to persons affected with it, and no safety afforded to the community by the isolation of the sick.'"

Of the utility of "quarantine in preventing the ingress of cholera into any particular country or locality," Sir Henry Holland says, "that

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it is wholly ineffectual—a judgment amply confirmed by the evidence of facts. The practical conclusion is one of great importance; but it will be long, I fear, before we can expect it to be generally adopted and acted upon."—(*Notes*, 1857.)

The question of the contagiousness of cholera, including its complemental one, that is, its prevention by quarantine, derives new importance from the action of the recent quarantine convention held in the city of Philadelphia, on the 13th of May, 1857.

Had that convention adopted as a fundamental principle of its organization, the utter exclusion of individuals holding lucrative offices dependent on the perpetuation of quarantine, together with their special appointees, as ineligible, having pecuniary interests at stake, or had these latter recused themselves as is usual in such cases, the vote affirming the contagiousness and importability of cholera, typhus and yellow fever, would have left the question of contagion, as applying to these diseases, just as it stood before, having but a small fraction of the profession in the affirmative, and this too, only theoretically; yet even these, in practice, follow in the footsteps of the non-contagionists! It is notorious that the faith of the most rigid contagionists "is without works." In New Orleans, at least, faith "*per se*" predominates: for neither the first nor the last cases of these diseases, which recently have received the *imprimatur* of the convention as contagious, are ever separated and sent to special pest-houses. The sick either remain at home, or go to the great hive of the invalid and sick, the Charity Hospital, but in neither event is seclusion nor non-intercourse practised. Wherein is domestic contagion a whit better than imported? Of what avail is quarantine seventy miles below or seven miles above the city, if these diseases, already in the city, are permitted to diffuse themselves unrestrained, from person to person, from square to square? Is not an evil which already exists, more to be dreaded than one which only impends, or is but a bare possibility? Without separation, a sporadic case of cholera or yellow fever may be expected to spread the disease indefinitely if it be communicable.

The logic of contagion as to cholera, yellow fever, etc., is subjected to an infinite variety of incompatible, contradictory, indefinable criteria, as contingent contagion, local conditions, atmospheric changes, filth, trade, personal intercourse, etc., singly or combinedly. Hence all reasoning hitherto, now, and to the end of time has proceeded, now proceeds, and will proceed in a circle until this all-comprehending, self-stultifying and ever changing method of ratiocination shall be replaced by exact definitions, facts, types, standards, and fundamental principles,

without which no certain progress can be expected. For more than a quarter of a century, a diluted logic has prevailed. Compared with the first quarter of the current century, the logic of the present day, including self-contradictory legislation, may be styled a steady progress into increasing darkness. Cholera is contagious, but not so *per se!* At one time infection, at another personal emanation, at another filth, at another atmospheric, or astral, or terrene, or subterrene conditions, will be alike fully accepted, not as contradictions, but as lucid demonstrations of a positive contagion, the *vera causa* of either isolated cases or expansive epidemics! Even in the small matter of the vocabulary, it is becoming very common to confound the words infection and contagion.

The late quarantine convention in Philadelphia, whose proceedings have been published in the public journals, affords an example of the modern method of reasoning and deduction, as set forth in the two, not to name any other resolutions, which, having been reported by the committee, passed unanimously, and were inaugurated as the fundamental principles of the conventional platform: namely, "1. *Yellow fever is not contagious, per se.* 2. *That it is only propagated in a foul or infectious atmosphere, analogous to that which gave it birth.*" Yellow fever is contagious or it is not; the phrase *by itself*, *per se*, being surplusage or a "damnable iteration." The second proposition contradicts the first: "Yellow fever is *only* propagated in a foul or infectious atmosphere." Hence it is not contagious at all, not being propagated from person to person, as all acknowleged contagions are. That it is wholly devoid of this power of propagating itself from person to person, is a conclusive opinion against its contagiousness, vouched for by the convention. The vote did not stop here. It is declared that "foul air gives it (yellow-fever) birth." Another theory is here propounded, and another contradiction is given to the first proposition. Can yellow fever be born before its life-giving parent, "foul air?" But waiving this impossibility, and admitting that it is born before its parent, and that it has the power of creating itself, why cannot it procreate and propagate "*per se*" without an incestuous union with its parent, the "foul air," which is the "only" agent by which it is "propagated?" Why uselessly assume, contrary to the recognized rules of philosophy, more causes than are required to explain the phenomena? Is it conceivable that *yellow* fever howsoever begotten, has no quantity, no quality, no essence, no ontology, no action, no symptomatic property, not even *yellowness*? If yellow fever be contagious, why should not contagion inhere in "yellow fever *per se*," rather than in that which is not yellow fever *per se*, but something else, something remote, external, and in nowise similar to itself? To attribute

the birth and propagation of any malady to "foul air only," is precisely what is called *infection*, and is in every particular the antithesis of contagion, as every dictionary will show. Worcester, in his dictionary, thus defines "INFECTION: Act of infection, the propagation of disease through the medium of the air, *distinguished from contagion*."

Notwithstanding a decadency in medical logic, like other periodical calamities, is much to be deplored, mother wit, sincerity, and consistency of conduct, will command the respect of all, not excepting opponents. The vote of twenty medical and non-medical persons, in favor of absolute or contingent contagion, being in itself an abstraction as much as a vote in favor of an earlier spring season, could only become meritorious by including, defining and enforcing practical measures, such as the actual method of disinfection ; the best disinfectants for both persons and things ; methods of ventilation, fumigation, heating, refrigerating, or otherwise purifying goods, as cotton, wool, silk, furs and other principal carriers of contagion ; the goods and ships that should be burned; the goods to be unshipped ; ware-housing; pest-houses for each contagious disease; the transmission or the exclusion of the mails and passengers to and from centres of contagion; the natural history of "foul air" (the foulest being that imported into New Orleans, not from the sea, but by the river, in boats which carry chickens, horses, hogs, sheep and cattle); whether the hogs that die of "hog-cholera" may be safely eaten? Whether the Governor of Louisiana,* who is governed by the Board of Health, is right in his proclamation now in force, which limits the quarantine to ten days detention instead of forty, the classical and accepted number? Whether the mayor of Charleston,† whose proclamation fixes "thirty days strict quarantine against all vessels from ports south of the latitude of Savannah," is wiser than the Governor of Louisiana?

By the way, it is remarkable that the existing quarantine in Louisi-

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**Proclamation by R. C. Wickliffe, Governor of the State of Louisiana.*—WHEREAS, by the thirteenth section of an act of the Legislature of this State entitled "an act to establish quarantine for the protection of the State," approved March 15th, 1855, the Governor is required, upon the advice of the Board of Health, to issue his proclamation, "declaring any place where there shall be reason to believe a pestilential, contagious or infectious disease exists, to be an infected place, stating the number of days of quarantine to be performed."

Now, therefore, upon the advice of the Board of Health, I hereby issue this, my proclamation, declaring Rio Jamero, South America, to be infected with contagious disease; and all vessels, together with their officers, crews and passengers, arriving from said Port o Rio Janeiro, or having touched or stopped thereat, shall be subject to a quarantine of ten days.

Given under my hand, and the seal of the State at Baton Rouge, on this 17th day of April, A. D. 1857, and 81st year of the Independence of the United States of America.

By the Governor: ROBERT C. WICKLIFFE.

ANDREW S. HERRON, Secretary of State.

†*Quarantine at Charleston.*—The mayor and port physician of Charleston, S. C., have given notice of the strict enforcement of their quarantine regulations. After the 1st of June, all vessels from ports south of the latitude of Savannah, where yellow fever either usually or occasionally prevails, will be required to remain at quarantine thirty days.

ana is solely directed against "vessels arriving from the port of Rio Janeiro," while, at other places, cholera or yellow fever has been and still is prevalent, as at Demerara, Bahia and elsewhere.

The report of the select committee of the Senate of the United States on the sickness and mortality on board emigrant ships, reported August 2, 1854, by the Hon. Senator Fish, chairman, adopted and five thousand extra copies printed by the government, (pp. 147, 8vo.,) sets forth "that this miasm [of typhus] attaches itself to every thing that it touches—to clothing, bedding, furniture and the walls of apartments—by which it is absorbed, and becomes more virulent in its action in proportion to the length of time during which it is permitted to remain. It is stated upon the highest authority, that this poison may last in 'fomites' for six months, and even for two or three years." The contradiction here advanced, that the poison grows stronger in proportion to its age, yet lasts only from six months to three years, is as excusable as some other prevalent samples of logic; but the data upon which this Senatarian decision is founded, including the sanitarian measures required, as area, ventilation, diet, purification, etc., were altogether worthy of investigation, or of an opinion at least, by a quarantine convention bent upon the prevention of diseases, by determining the practice as well as the fundamental principles essential to the promotion of health throughout this Republic.

If fever and cholera contagions permeate the very walls of apartments and the timbers of ships, growing more virulent for six months or three years, is not the Louisiana quarantine against Rio Janeiro alone, too short by three years, minus the "ten days?" Can such contradictory conclusions flow from facts, from reliable criteria, from the inductive philosophy? The *Patres Conscripti* at Washington, in their *Senatus Consultum*, did no more than report what the Æsculapian oracles had uttered, one of which is put in capitals thus: "ONCE INFECTED, ALWAYS INFECTED, UNTIL DISINFECTED."

Mr. McCulloch, a quarantinist, author of the celebrated Dictionary of Commerce and Navigation, justly says in his article on quarantine, that "during this period [forty days] all the goods, clothes, etc., that might be supposed capable of retaining the infection, are subjected to a process of purification. This last operation is the most important part of the whole quarantine system. There is not, even in the Thames, a lazaretto where a ship from a suspected place may discharge her cargo and refit: so that she is retained, frequently at enormous expense, during the whole period of the quarantine; while if she have perishable goods on board, they may be very materially injured." It is

probable, that at no port in the United States, are the fundamental principles of the recognized system of quarantine carried fully into practice, as it regards disinfection, isolation, detention for forty days, etc.

The public press announced in the winter, that Mr. Samuel Hough, of the United States coast survey, died of yellow fever at Key West, on the 14th of January, 1857. Here the danger of contagion was more imminent than that from the remote city of Rio. The cholera, which within a few months has been decimating the armies of Nicaragua, Costa Rica, and other portions of South America, with which New Orleans has intercourse, would seem to be quite as dangerous as Rio.

If "foul air" be the originator and propagator of cholera, it is not philosophical to assign any other; yet it is easy to conceive, and probably the conception is in many instances true in ætiological science, that a disease may originate from a composition of causes, neither of which taken singly is sufficient, neither of which must be absent, and all of which are essential to the resultant, namely, the "birth of the disease." Now it is impossible that cholera should be one of these elementary causes, seeing that it is, upon this view, the direct effect of several essentially conjoined causes. The cause of a disease, whether it be an emanation from the sick, or from a deleterious combination of earth, air and water, external to the human body, is not identical with the conditions favorable or unfavorable to its propagation or retardation.

Although in commencing this article, it was not intended to enter upon the questions of contagion and quarantine, yet "the logic of events" and their great importance to the public welfare, suggested the propriety of the slight analysis above given, and will it is hoped, justify the extension of this paper beyond its intended limits; and should it contain any repetitions, the reader will excuse them, as one part was in the printer's hands, while the writing of the residue was in progress or not yet finished.

ART. II.—*Clinical Lecture by the late Dr. Drake.*

[COLUMBIA, Texas, April 24, 1857.

DR. DOWLER: *Dear Sir:*—Inclosed you will find a copy of an Introductory Clinical Lecture delivered in the Louisville Marine Hospital, by the late Prof. Daniel Drake to the class of 1845–46. It was taken down by myself at the time, and as everything from him is valuable, I send it to you that it may be perpetuated.

Yours respectfully, GREENSVILLE DOWELL, M. D.]

MODE OF EXAMINING A PATIENT.

You should in your examinations, inquire of your patient as follows:

First. Of what country a native? His age and occupation. Secondly. How long has he been sick? Whether he has ever been sick before? If any of his relations have had the same disease before? especially, if the disease be a hereditary one. What medicine he has taken? How did it act?

In the next place, you should commence your examinations with the external appearance of the body or configuration. 1st. See if there be any prominences or depressions and mark their situations and nature. Note whether the patient be corpulent or hypertrophied or debilitated, or of a feeble constitution.

2d. Observe the color of the skin. If it be of a yellow-brown color, you may infer that something is wrong about the biliary apparatus, and that the liver is not in a healthy condition. If the skin be of a pale livid color, you may expect some disease or derangement of the circulatory apparatus, either of the heart or blood vessels; or that the blood is imperfectly aërated.

3d. You should examine the alimentary canal, beginning with the mouth. If the tongue be coated with a dark scurf, or scaly, with tumefaction of the gums, with dark deposits of matter on the teeth, we may infer the patient to be typhoidly disposed. Again, if the tongue be red and dry, with a good deal of thirst, there may be inflammation of the stomach, or duodenum, or liver. If the tongue be covered with a thick, slimy coat, you may be sure the system is very much affected, and that the disease is of a debilitating and malignant character, and you may apprehend the worst consequences.

Proceeding with your examinations, you depress the tongue with some wooden instrument, and observe the organs exposed in that situation, whether there be tumefaction of the tonsils and uvula. Feel or make pressure on the skin, over that part, and you will discover if there be inflammation or not.

Next comes the stomach. If there be soreness of the epigastric region on pressure, with nausea, heat and thirst, and pain following eating, there will be inflammation of the mucous membrane of the stomach, and so on to the rectum, varying your examinations according to the part of the canal.

Then you should turn your attention to the respiratory system. Make your patient sit erect. Take off his clothes. Now make him bring a long breath; notice whether it gives him pain or not. Whether it produces cough. Pay attention to his voice when he speaks. Notice whether it be bronchial or natural. Now commence and make percussion, first, from the clavicle to below the sternum, about half way between

the sternum and the spine, and then on the opposite side in the same manner, noting the different sounds; secondly, at the back, beginning at about opposite the same point as before, proceeding down the back between the spine of the scapulæ and the vertebræ.

Take pains, in your percussions, to strike with the ball of your fingers, raising them immediately. Then apply your ear, with a towel or something of the kind between it and the body, closely applied, or with the stethoscope. Note the consequences. If the sound be loud, upon percussion, and the respiratory sound be bronchial, and the vesicular be absent, there will be hepatization of the lungs, and so on, making your diagnosis according to the physical signs.

While you are using the ear or the stethoscope, make the patient count or speak in monosyllables; make him cough; observe if it gives him pain. If he expectorate, observe whether it be pus or mucus.

Next in order is the nervous system. Beginning with the nerves of sensation or the five nerves of the external senses; first, the eye. If there be insensibility to light, we may infer that there is congestion of the brain from apoplexy, or effusion of serum or lymph, from inflammation. Again, if there be great irritability of the nerves from light, there may be inflammation of the brain that has not proceeded to a termination by either effusion of serum or lymph. The same examination with respect to the sense of hearing. These all noted, you should proceed to the spinal marrow. Make pressure along its whole extent. If there be pain upon pressure, you may infer that there is inflammation somewhere in its course.

We next examine the vascular system. Examine the pulse. If it be full and strong, with hot skin, we say there is fever. If it be incompressible and wiry, with heat and pain, we say there is inflammation of some organ, and should we bleed, we will find the blood to have a superabundance of red globules, with a buffy coat and cupped. We notice whether there be congestion of any organ, such as the heart, lungs, liver, spleen, or the general capillary system; whether there is a state of collapse or depression. Lastly, we observe the secretory apparatus. First, the saliva; second, the gastric juice; third, bile; fourth, urine; fifth and lastly, the fæces. If there be a profusion of saliva, there may be some hard irritating substance in the mouth of the patient, or he may have taken too much of some preparation of mercury, which has produced ptyalism. There may be too great a secretion of the gastric juice, and it may be of an acidulous nature, producing indigestion. Bile may be secreted in too great a quantity, and produce dark and irritating discharges, or it may be suspended, and the

fæces will be white and dry, or of a costive nature, that is, producing costiveness, with imperfect digestion, flatulency and colic. There may be too great a secretion of urine, producing diabetes, or it may be stopped by inflammation of the kidney, which will give an odor to the perspiratory matter, and to the breath by the effete which it is in the habit of carrying away, getting or remaining in the blood.

The fæces are a valuable means of diagnosis. If they be white or clay-colored, or greenish, there will be some derangement of the biliary organs. If they be mingled with undigested matter, there is derangement of the stomach and tributary organs. If they be hard and dry, we may infer that there is inflammation in some part of the tube, etc.

Art. III.—*On the Influence of the Mind on the Origin, Course, and Termination of the Diseases of the Body:* By Alf. Mercier, D. M. P.

We shall attempt in the following lines, to appreciate the influence of the moral affections on the origin, course and termination of the diseases of the body. For this purpose we shall at first allude briefly to some notions of physiology, and having rapidly shown how, in the state of health, the mind acts upon the body, we shall proceed to determine how far, under a pathological point of view, the same relation exists between our mental faculties and material organs. Our endeavor will be to avoid metaphysical disquisitions, and confine ourselves as much as possible to the compass of facts.

The heart is a muscular organ, a kind of living pump, having the property of alternately dilating and contracting. Its final destination is to push the blood through all our system as far as the external surface of the skin, and thus diffuse life everywhere. It generally contracts, or beats as we say, about sixty or seventy times a minute in adults. This most important machine, this source of existence itself, can however be influenced by the impressions of the mind ; even the least moral cause will disturb the harmony of its motions. How quickly and strongly, for example, does it beat in the young girl who makes her first appearance in the world. Look at that man, on the contrary, who receives a letter bearing bad tidings ; in proportion as he reads his face turns pale, his heart stops—he faints.

It has ever been remarked that the closest sympathy existed between the mind and the digestive powers. The ancients, who excelled in hygienic matters, recommended reading as a good preparation to the

pleasures of the table. It is a matter of fact, that a few well written pages on a pleasant subject, at the same time that they cheer and repose our mind, do certainly excite and facilitate our gastric functions. If the gay companions of a banquet eat more than at their usual home repasts, it is owing not so much to the change and variety of dishes, as to the absence of all serious preöccupations. Do you want a man to take a scant nourishment? force him to eat his meals in the silence of solitude. It is very probable that some consideration of this kind prompted the rule which enjoins to each monk of the Carthusian Order to eat apart in his own cell. Who of us does not remember with what increased appetite he took his food at college, when on some occasion of solemnities or patriotic anniversaries the pupils were permitted to speak at table.

One single example will suffice to show the effect of the impressions of the mind on our secretory system. The ball of our eye is kept in a constant state of moisture by a small gland located at the upper part of its socket. The fluid furnished from this source is absorbed and carried away by two canals in proportion as it flows. But if from one cause or other the action of the gland is increased beyond measure, large drops or tears, as they are called, will be seen coming down along the cheeks. Nothing has more power than grief to produce this phenomenon, and those tears depend so much upon an afflicted state of mind, that as soon as we see them, we naturally conceive secret sympathies for the moral sufferings which they betray.

It is a vulgar saying that indignation or anger doubles the muscular strength of man. Innumerable facts could be brought forth to justify this popular assertion. Among the most striking ones is that well known incident which happened some years since in England. A man of delicate constitution had a daughter whom he loved tenderly, she being the sole comfort of his life. All on a sudden she disappeared. For years the poor father roamed all over the country in search of his beloved child. At last he discovered her on the platform of a mountebank: her manners had become cynical and her language was that of a courtesan. To rush to the ignoble Hercules standing by her, to crush him down under his feet and leave him a corpse, was the affair of a minute for the desperate father. But if a sentiment of strong exaltation can raise the muscular powers to such a point, feelings of an opposite kind will reduce them almost to nothing. There is nobody who has not experienced the extreme debility which emotions of a melancholy nature leave after them.

The closest connections exist between the nervous system and the

mind. It seems as if the nerves were the least material organs of our body. From the brain and spinal marrow they spring like branches from a common trunk, divide into infinite ramuscules alternately carrying sensibility to and from all the parts of the living frame. So exquisitely impressive are they, that in the eyes of some philosophers, life and even our soul itself is but an effect of their action, in the same manner as a musical sound results from the vibrations of the instrument which is played upon. The relation between the nervous system and the mind being so intimate, no wonder if the impressions of the latter so easily reflect upon the former. We shall hereafter have occasion to notice how often to moral causes is to be referred the irregular course which some diseases are seen to follow. But let us at first establish some truths which will lead us to an easier understanding of the mind's intervention between the trials of the body.

It must be acknowledged that in medicine as in other departments of science, the same one effect can be produced by very different causes. Every one knows that the effluvia arising from marshes give birth to the intermittent fever. Though this fact has been contested, we think it a well demonstrated one. Now it is not less true that the same kind of fever can also be brought on by catheterism, by the secretion of the milk, and by any strong affection of the mind. This is very remarkable indeed. Here we see the same disease produced by three different, nay, one would say, jarring causes. If, then, the affections of the mind can generate the same morbid phenomena as the miasmatic poison or the catheter, why should they not as well create other pathological disorders?

Grief, as we have already said, has direct and prompt effect on the digestive functions. The stomach, says Hippocrates, is to man what the soil is to the plant. It is the great reservoir whence all the different parts of our organism receive their nourishment. If it is altered in its functions, the whole body feels it; the fund of life becomes reduced, the power of reaction fades away, and then that fatal predisposition to sickness, which every one bears in himself, predominates and calls forth the invasion of morbific agents.

That troubles of the mind have a power to vitiate the fluids of our economy, is fairly proven by what takes place in mothers suckling their infants. Emotions of all kind, deep sorrows, violent vexations, modify and alter the secretion of milk. A professor of the school of Paris, known by his researches on the diseases of young children, relates that he knew a very impressionable lady, who, during the summer, became extremely nervous as soon as the atmosphere was filled with electricity.

If in those circumstances she gave the breast to her baby, it immediately showed intense agitation, which went so far as to terminate in convulsive spasms. Taught by experience, she kept her infant from the breast as soon as she was warned through her own sensations of the approaching danger, and the infant has never since been subject to convulsions. But there is another fact reported in the British annals of Medicine, which shows in a far more impressive manner, how quickly the milk of woman can acquire the properties of poison. A soldier being in a quarrel with a man, drew his sword, when the wife of his adversary rushed to him and wrested the weapon from his hand. Soon after this stirring scene, the woman presented her breast to the lips of her baby, then in a perfect state of health. No sooner had it taken some mouthfuls, than it writhed in agonies of pain and died.

Reasoning analogically, why not admit, since the affections of the mind can change in so much the nature of the secretion of milk, that they can modify likewise the other fluids of the human body. But whether they bring on diseases of the body by vitiating its humors, or by disturbing the harmony of its functions, or by depressing its vital powers, this is ever a great question proper to inspire the man of science with the desire of further researches. As for the fact itself, of mental causes creating sickness of the body, it seems to us to be undeniable, undisputable. Our intention never was to give here a full catalogue of instances calculated to illustrate this truth. We even leave aside a whole pathological class in which the moral influences play so prominent a part. It were indeed almost superfluous to recall to mind that it is the passions that oftenest produce the various forms of insanity. Insanity in its turn reacts upon the organs, and in a great many cases the *post-mortem* examination shows material lesions, either in the brain and its dependencies, or in the abdominal viscera.

There is a disease perhaps more hideous and more deplorable than insanity itself; a disease which renders those it tortures quite miserable, by keeping them in a perpetual state of dread and self-horror. The man subject to it possesses his full reason, and yet he knows that from one moment to another, he is exposed to lose it completely, and fall into such convulsions, as will to him, look more frightful than death itself. Every one in this description will recognize epilepsy. This awful neurosis has been ascribed to various causes; but from the latest and most accurate statistics, it results that three times out of four, it is to be attributed to fear. Thus a simple moral commotion has the power to act on the human organism, so as to make it harbor an evil which puts medicine at defiance, and often accompanies its victim into the grave.

Military physicians have all remarked the influence of the mind over the wounded after great battles. When large armies have been engaged in one of those memorable fights, upon which depend the destinies of an empire, we can easily imagine into what prostration both of mind and body, will fall the bleeding soldier, who sees that all his courage could not save the independence and honor of his country. Elated with joy and pride his triumphant enemy looks with confident heroism at his own mangled limbs, and anticipates the acclamations with which the crowd will greet him on his return in his country. The result of this difference in the moral dispositions on both sides, is that the wounded of the vanquished camp die in larger numbers; for to the sick, high spirits are a reviving balm, despondency a deadly poision.

Physicians of earlier times had already remarked how much the human body is liable to be pathologically influenced by moral affections; and among the various facts which antiquity has transmitted to us in illustration of this truth, there is one so applicable to our subject, that we beg leave to bring it in.

Erasistratus was attached, as physician, to the court of Seleucus Nicanor, king of Syria. It happened that Antiochus the son of that prince, became enamored of the fair Stratonice, his stepmother. His deep, concealed passion, reacting at last upon his body, he was seized with a violent fever, the cause of which Erasistratus did not at first perceive. But it was not long before the attentive and sagacious physician remarked, that whilst the young prince remained indifferent before the other wives of the king, the symptoms of his disease would undergo extraordinary changes as soon as Stratonice entered his room. He at once detected the origin of the prince's sickness, and foresaw the possibility of its cure. He went to the king. "Sire," said he, "your son's disease is one that leaves no hope." "No hope," exclaimed the king, "how is it possible?" "You will readily understand it, Sire, when I tell you that your son has fallen in love with my own wife; and I am not the man to satisfy his heart at so dear a cost." "O, Erassistratus," said the king, throwing his arms around the physician's neck, "wilt thou refuse that which can save a son I love so tenderly?" "Sire," replied the physician, "put yourself in my place: would you part with Stratonice if the young prince loved her?" "Ah! would to the Gods," said Seleucus, "the recovering of my son depended upon this; I would with all my heart give him Stratonice and a portion of my empire." "Well then," answered Erasistratus, "there is no one but you who can save Antiochus, and there is no other means of preserving his life than to make Stratonice his." Seleucus immediately declared his son king of Upper Asia, and gave him Stratonice in marriage.

We readily confess here, that when we began to study medicine, we were very far from suspecting how much the disturbances of the mind were capable of generating sickness in the body. We were somewhat inclined to believe that the assertions of authors on this point, savored a little of the marvelous. But besides that, our incredulity rested on mere prejudices, we were unwilling to be deficient in respect and consideration towards names so highly revered in the annals of the medical sciences. We therefore resolved to ascertain if we could confirm by our own observations and for our own personal satisfaction, what others had long since established as indubitable truths. For this purpose we availed ourselves of our position in the hospitals of Paris, which gave to us a fair opportunity to get into the patients' confidence. Most of them were poor, unfortunate creatures, very prone, indeed, to open their hearts to any one that seemed disposed to take their troubles into consideration. We were soon convinced that diseases proceeding from moral causes are of the worst kind. They have a tendency to follow an erratic course, and assume that peculiar ataxic form which indicates that life itself is shaken to its innermost depths. In cases of this sort, remedies have little effect, for the morbid cause remains ever acting, ever opposing its power to theirs. But we wished to go further, we wished to see, as it were, this cause begin to work in our presence and give birth to diseases in the hospital itself.

Just opposite the buildings of the Paris school of Medicine stands an old monastery, which has been transformed into wards for patients. The rooms for the confined women are close by a service of surgery and halls for dissection. Now it can hardly be imagined what havoc death makes there among those poor women. The scourge which sweeps them away has been attributed to the miasms arising from the neighborhood. Certainly to be placed in such a pestilential atmosphere cannot be altogether inoffensive. But this is not the greatest cause of mortality among those wretched creatures; for death is seen to prevail almost in the same proportion among the confined women at the Hospital of Cochin, the healthiest one in Paris. We were naturally led to search if those unfortunate victims did not bear in themselves, some particular circumstance that could explain how it was that they should die in such large numbers, whilst other women in the city went successfully through their confinement. It was not long before we found that all, with but few exceptions, were not of Paris, were not married, and that the infant they had brought to the light in the hospital was their first one. More consequences derive from these three facts than it could be imagined at first sight. Let us see how things generally follow their course with

these wretched young mothers. The history of one is the history of all. Here is a girl who has betrayed the confidence of her parents, and exposed her family to shame and despair. She is betrayed in her turn and abandoned by her seducer. What can she do? Time presses upon her, she is not able to conceal her fault any more. Will she brave the contempt of public opinion? No, she flies to Paris, leaving a desolated family behind her, carrying in her own heart the pangs of remorse. Her little money being spent, she finds herself without a home, without a friend, alone in that immense Paris. How will she pass the interval which separates her from her confinement? She would work: but who cares to take a person in her position to service? Here begins a series of deceptions and mortifications, a real agony of mind. At last, the forlorn and worn down creature is admitted in the hospital. That solemn and terrible hour has come, when at the point of becoming a mother, she feels how much comfort she would derive from her mother's presence. She looks around and sees but unknown faces. Is there any thing in the world more cruel for a woman than this? The poor, unfortunate creature at least believes there is nothing worse than this; and yet the morrow undeceives her. Her infant is born, and what will she do with it? Can she carry back to her home the living proof of her shame? She cannot think of it. Where is then the refuge for the fruit of her unhappy love? A voice, which breaks her heart, answers—the foundling hospital awaits it.

A woman having been confined recently, is in what physicians call the *puerperal state*. During this period of time she is extremely accessible to morbid agents. This is a well established fact; all physicians agree on this point. If we consult the best authorities, we shall satisfy ourselves that the affections of the mind have an extraordinary power to increase this aptitude to sickness, and among the various diseases which they provoke, are peritonitis and uterine phlebitis, two formidable and often invincible enemies. We found that point of doctrine so frequently confirmed by reality, in the hospitals of Paris, that to us, it was from that time demonstrated beyond doubt. Whenever a pregnant woman entered in the service where we were, we used to ask her the following three questions: How long have you been in Paris? Are you married? Is it your first child? If she answered—I came into Paris four months ago; I am not married; it is my first child—woe to her! we knew she was almost doomed to an inevitable death. We had seen so many pass one after another from the beds in the wards to the iron tables of the dissecting room. Every body knows the famous ballad of the great poet of France, beginning thus:

"How many young girls have I seen die!"

We recollect now, that we sometimes used to say to ourselves in those hospitals: Here is the stern kingdom of reality, and how much more it becomes us to speak these melancholy words—How many young girls have we seen die!

Among so many, we remember one especially, who had come to Paris with a deep conviction that she never would retrace her steps to her native place. We tried our best to soothe her, but in vain; she had a presentiment that her confinement would prove to her a sentence of death, and rejected all consolation as useless. She was delivered successfully, and every thing went on in such a satisfactory manner during two days, that some persons would jest at her for her former fears. But after that time she began to present some alarming symptoms; they grew worse and worse, and it was not long before it became manifest that she was lost beyond doubt. Her head was free to the last; she saw at once all the danger, and yet she had such a desire to recover for the sake of her new-born child, that she struggled against death with an extraordinary strength of mind. It was an awful sight even for those who had long been accustomed to scenes of this description. There was something both sublime and thrilling in that woman sitting up in her bed, with her features already distorted by the convulsions of impending death, and collecting all her energies with the idea that by gaining time she might wear out her disease. Her last thought was for her infant. Now he is going to be without his mother, sighed she; what will become of him! With these bitter words she breathed her last.

The father of medicine, the immortal Hippocrates, knew so well the influence of the mind on the body, that he professed the physician to be wanting in common ability who did not possess the art of comforting his patients. Man has not changed; he likes now as he did in former times, to see in the physician standing by his bedside, not only a scientific personage scrutinizing the causes of his disease, but as a friend too, who sympathizes with his sufferings, and whose presence is the sweet harbinger of returning health. The physician must have a profound knowledge of the human heart; he must be acquainted with those numberless sorrows which secretly embitter the heart and poison the sources of life. He should be the priest of the mind to be the restorer of the body. At the same time that he calls to action the benificent virtues of remedies, let the language of hope flow from his lips, and consolation beam in his smile. The patient thus attended, will bear his pains more lightly, and nature seconded by art, will be more at ease to accomplish the mysterious work of cure.

Art. IV.—*Medical Matters at Paris.* (Extract from a letter from W. A. McPheeters, M. D., to S. A. Cartwright, M. D.)

63 Rue de Seine, Paris.

Dr. S. A. Cartwright:—*My dear Sir:*—I derived great pleasure from the perusal of your very interesting letter, which came to hand a short time since. I thank you for the many useful hints which it contained, and I will take pleasure in profiting by them while pursuing my medical studies.

You ask how the French treat purulent ophthalmia? I attended the clinic on diseases of the eyes of M. Desmarres for two months, and saw a number of children affected with that disease. In all genuine cases of purulent ophthalmia, he always resorted immediately to the cauterizations with nitrate of silver. He everted the upper eyelid and cauterized it thoroughly with the solid stick, and then washed it with a solution of chloride of sodium to destroy the excess of the cautery, and to prevent it from coming in contact with the cornea. He said, however, this means must be employed with great care, as very sad consequences might result from its untimely and injudicious employment. He also directed the eyes to be kept as clean as possible, and cold cataplasms to be applied over the lids. In cases of *catarrhal* ophthalmia, where often the lids are very much swollen, and there is an abundant mucous discharge, bearing a close resemblance to the purulent variety, the two diseases might easily be confounded. In these cases, M. Desmarres pursues a much milder course of treatment, viz.: by a pommade of cupri sulph. introduced between the eyelids; by purgatives, footbaths with salt and ashes, bathing the eyes every hour or two with a collyrium of ratanhia or some other vegetable astringent. He cautioned us very particularly about using the argenti nitras in these cases, and said that a great many eyes had been destroyed by its improper use in such cases. But in the true purulent ophthalmia, he relies almost wholly on its efficacy, especially at the *début* of the malady, and when there is no trace of softening of the cornea.

Desmarres, in his treatise on this subject, after speaking of the efficacy of cauterization says: "je n'ai aucune sorte de confiance dans le traitement par les antiphlogistiques, les lotions émollientes, et les préparations mercurielles vantées par beaucoup de praticiens dans la première période de la maladie. Les collyres doux, loués par la plupart des auteurs, ne réussissent qu'au début ou dans les seuls cas où une conjonctivite catarrhale simple a été prise pour la conjonctivite purulente."

M. Desmarres, formerly the pupil of Sichel, now his rival, has a very large *clinique*, and takes great pains to instruct his pupils. He is very

skilful in the use of the ophthalmoscope, by which he diagnosis all maladies of the interior membranes of the eye with great accuracy. The ophthalmoscope is a small instrument which reflects a strong light into the interior of the eye, which enables us by the aid of a bi-convex glass, to see the interior of the eye through the pupil. This discovery bids fair to be of as great service in the diagnosis of diseases of the eye, as auscultation has been in diseases of the chest, but, like auscultation, it would require a great deal of practice in its use to be able to diagnose with any degree of accuracy.

During the past winter, I have paid particular attention to the study of auscultation and percussion, and will continue to do so as long as I have the opportunity, as one cannot know that important part of the science of diagnosis too well.

I think that Paris is a much better place to learn diagnosis than the treatment of disease, although one has the opportunity of seeing various modes of treating the same disease by different eminent physicians.

I followed the wards of M. Bouillaud for some time, to observe the effects of his "*sine quâ non*," the lancet. In all phlegmasias he depends almost entirely on bloodletting. In one case of pneumonia he had the patient bled *seven* times in five or six days, taking each time from twelve to sixteen ounces of blood by venesection and cups. The disease was finally arrested by this heroic treatment, and the patient slowly convalesced from his exhausted condition. He took no antimony or mercury, and in fact, no medicine until the inflammation was checked, after which, it was necessary to give him tonics to resuscitate him from his exhausted condition, produced, not by the disease, but by the treatment. More than a month elapsed before this patient was able to leave the hospital.

In another case of pneumonia, that of an old woman, more than sixty years of age, five bleedings were ordered in the space of three days, at the end of which time the inflammation subsided, and strange to say, the patient recovered, or at least regained sufficient strength to leave the hospital after a considerable lapse of time. In rheumatism, the same course is pursued, but this powerful antiphlogistic does not prevent the frequent occurrence of endocarditis and pericarditis during the march of the rheumatism. As we cannot follow the cases after they leave the hospital, we are not able to know how many of these patients die of phthisis or other diseases to which they may be predisposed, and which their exhausted condition would call into action. M. Bouillaud pretends that his statistics show a much smaller degree of mortality than those of any other physician who has pursued a different course of treatment, but I do not believe it. I forgot to mention that in connection with

bloodletting, he uses blisters, which is the only adjuvant employed to check the inflammation.

M. Piorry, the great *percussor*, has his hobbies also. He says that quinine will reduce the size of the spleen instantaneously in cases of intermittent fever. He pretends to mark out the exact size of that organ to the eighth of an inch, by percussion, and thus judges of the difference before and after the administration of the remedy. I saw another physician making similar experiments, by giving the patient simple water, and he found an equal diminution of the spleen, by percussing both before and after the potion was administered.

M. Piorry treats phthisis by means of inhalations of the vapor of iodine. I noticed the frequent occurrence of hæmorrhage with patients under this treatment, which I thought might be due to the irritating properties of this medication. He arrests the hæmorrhage by means of perchloride of iron, given in doses of ten or twelve drops in a potion. He also recommends this remedy in cases of hæmorrhage from the bowels, giving an injection containing about a drachm of the tincture (40°) to four ounces of water.

The subnitrate of bismuth is extensively used here in diarrhœa. They give it in enormous doses, even to young children, from one to two drachms during twenty-four hours. It seems that this medicine may be given in almost any dose, when perfectly pure, but if it should contain impurities, as sometimes is the case, it may produce exactly the contrary effects, and increase instead of abating the disease.

In pseudo-membranous croup, physicians give chlorate of potassa, which seems to have a good effect in preventing the formation of false membrane, and in detaching it from the larynx and trachea, after it has formed.

I am now attending the Hospital *des Enfants malades*, and have seen four cases of this disease treated by this remedy. The result was not very satisfactory, as tracheotomy had to be performed in all four cases, on the second or third day of the disease, and two of them died from *complications* of pneumonia and bronchitis. The other two are doing well, though the air still passes through the opening in the trachea. It is hoped, however, that the wounds will be entirely closed in the course of a few days more. In these cases, the chlorate of potassa may have prevented the false membrane from extending down into the trachea, though it could not prevent the supervention of pneumonia which caused the death of two of the little patients. In conjunction with the potassa, they give emetics, cauterize the fauces with nitrate of silver, etc.

Numerous experiments have recently been made in Paris with a new anæsthetic agent, amylene, which was first used by Dr. Snow, of London. It is less powerful than chloroform or ether, and was supposed to be entirely free from danger. However, one death has recently been caused by it in Dr. Snow's practice, which sad occurrence has somewhat abated the ardor of its supporters. It has a disagreeable odor, is more expensive, and less efficacious than chloroform ; hence, I do not think it will supersede the latter. Chloroform is used very extensively in Paris, but I have not seen or heard of a single death from its use since my arrival nine months ago, which shows how rarely accidents happen from its use. I have seen M. Brichet administer chloroform in several cases of hysterical attacks. The patients were very soon quieted down into a quiet slumber, from which they awoke entirely relieved.

M. Trousseau has commenced his spring course of clinical lectures at *Hôtel Dieu*. He is a fine orator and a very interesting lecturer, but his views cannot always be relied upon ; at least, they often differ from those generally adopted by the profession. As a clinical lecturer, M. Nélaton surpasses any one I ever heard. His remarks are concise and always to the point. His great forte seems to be in making correct diagnoses, though he is also a very skilful operator. His lecture room is always crowded with students, while M. Velpeau often has a thin attendance, which shows at least that Nélaton is the most popular lecturer.

The mortality of patients operated upon in Paris is very great. At first I was inclined to attribute it to the enfeebled condition of hospital patients; but M. Nélaton, in a lecture on the subject, said that equally fatal results occurred in private practice. He attributes this great mortality to some peculiarity in the atmosphere of Paris, which produces purulent absorption. He says that in the provinces of France, similar operations are performed with much better success. In the Parisian hospitals, it is the exception rather than the rule, for a patient to recover after an amputation of the leg. The absorption of pus is the usual cause of death. I would never advise any one to come to Paris to be operated upon, although the surgeons are very skilful.

I have, doubtlessly, already wearied you by this long letter, so I will not extend its limits further. Yours most truly,

May 6th, 1857. W. A. McPHEETERS.

Art. V.—*Non-Fatal Cases of Cholera.* By Bennet Dowler, M. D. Continued from Vol. XIII p. 640.

To practise, to record cases, and to make post mortem examinations in cholera during an epidemic, require an amount of individual labor, mental and corporeal, which few will be willing to assume. Hence, in the numerous works on cholera, it will be found that the history of its progress, including its mortality statistics and reflections on its cause and cure, preponderate over the histories of individual cases written at the bed-side, and in the dead-house.

In the present article, it is proposed to copy a number of cases from original notes made simultaneously with the occurence of the events to which they refer, without comment and without adopting the principle of selection. The ordinary, not the extraordinary cases, will, therefore, be given on this occasion, excluding for the present, therapeutical, pathological and anatomical data and discussion.

1848. December 21st; 8, p. m. J. H., aged about twenty-five, married, resident seven years, laborer; worked at loading a ship until noon; has had a copious, watery purging for 24 hours. In the evening he became weak, faint, hands wrinkled; rapid purging; vomiting; cramps in the arms, fingers, legs, and had one paroxysm of general spasm or convulsion. Had, before I saw him, used baths of mustard to his legs; sinap. over the stomach, and general frictions. Found him cramped, vomiting, etc. Pulse small, thready, variable, irregular; respiration quick; feels a want of breath, or a sensation like smothering; eyes injected; slight head-ache; great thirst; skin congested, of a dull red; nails darkish; repeat the mustard; table spoonful of cold water often repeated; R. Cal., mass. hydr., quin. sulph. ℈i*aa*; morph. sulph. gr. v, in twelve pills; two every hour.

December 22d; 8, a. m. Has taken the twelve pills; soon after the first dose, cramps and vomiting ceased; has had but two thin stools; intense thirst; pulse small, thready, intermittent, 100; skin not hot; respiration, tongue, etc., little changed; nails darkish; small potions of iced lemonade; to be followed by chicken-water.

Noon. Has had a sleep, the first since he was taken sick; has a natural sweat; moderate vomiting; lemonade grateful; pulse small, variable, intermittent; urinated once only since his attack.

6, p. m. Pulse small, 100; much thirst; no urine.

December 23d; 8, a. m. Nausea; no urination or defecation for more than twenty-four hours; weak voice; small, feeble pulse, but it is a little fuller; skin warm; thirst; thinks his gums are tender; Rhei, aloes, *aa*ʒi. in twenty-pills; five every two hours until purged.

Noon. Costive ; has taken ten pills, without effect ; directed an enema ; fomentations of the lower abdomen ; no urine.

6, P. M. No urine; introduced catheter, neck of the bladder resisting ; drew off about 1 ℔ of turbid urine ; no stools ; enema and fifteen pills retained ; vomits moderately ; tongue furred, being a little brown : continue enemata, with three tablespoonfulls of salt in each ; skin moist all day.

24th. Had copious fæcal and urinary discharges ; is convalescent : no mercurialization ; at night tenesmus come on.

25th. Costive; took an enema; had a bloody stool in the dysenteric straining ; tongue, pulse and breathing nearly natural : takes quinine and morphia ; sinap. to the abdomen.

26th. Convalescent.

At 9, A. M., saw this man's eldest child, who had been taken at midnight with cholera; it was dying when visited. It lived until 11, A. M.

At 4, P. M., the other and only remaining child was found dying; no prescription was thought expedient. The quantity of rice-water or milky stools was very great ; one stool which I saw was little short of two pounds.

1848. December 29th. F. Y., aged thirty-six, late of the American Army of Mexico ; has had vomiting and choleraïc purgings for two days, during which time he has been using warm foot baths ; also, sundry doses of blue mass, prepared chalk, and the sulphate of morphia.

December 30th. Vomiting and purging continue ; cramps ; skin cool ; pulse small ; intense thirst ; has taken to-day at intervals, a pill of opium, one grain ; repeated this dose until four pills had been taken : removed to the hospital.

31st ; M. Senses regular ; skin pale ; tongue tumid, rough and dry ; respiration easy ; heat indifferent regions from 88° to 96° ; vomiting and purging ; cramps slight ; thirst ; supposed to be convalescent.

This patient in thirty-six hours before entering the hospital, took five grs. of sulph. morphia, four grs. of solid opium, sixty grs. of blue mass and ninety grs. of prepared chalk.

1848. December 26th; 5, P. M. C., a German laborer, aged about twenty-five, having eaten dinner as usual, worked during the afternoon until taken sick with purging, vomiting and cramps; whereupon he returned home, took a teaspoonful of the tincture of camphor and some brandy. I saw him an hour after his return, and found him suffering from severe clonic spasms of a tetanic character, which included, at times, opisthotonos; stertor, paroxysms of asphyxia amounting almost to apnœa; four men were scarce able to hold him during the convulsive

paroxysms; in the intervals he is usually insensible, but had several gleams of sense; said he had pain in the head and belly. Cups to the nape and epigastrium; blue mass ℈i; cretæ ℈iss, in two doses; sinapisms; cold to the head. In an hour the clonic spasms ceased; the pulse was variable but not small; he had now red flushing of the face. (Here is an apparent combination of cholera and cerebral congestion.)

At 8, P. M., neither vomiting nor purging; cramps in the arms, but most of all in the abdominal muscles which swell up in rigid masses, like vast bony tumors. The abdomen is distended; its cavity or the bowels contain a fluid as indicated by fluctuation upon percussion.

December 27th. Fever. Mass. Hydr. et cretæ. On the next day this patient was convalescent.

1848. December 26th; 8, A. M. An Irish girl, a washer-woman; had suffered from diarrhœa for two days, from vomiting, choleraïc purging, and cramps for twenty hours; has a weak voice; a bluish, corrugated, cool skin; pulse irregular and small; respiration quick; tongue pale, moist; thirst; restlessness; debility. Directed external warmth; foot-bath; sinapisms; also doses of opium and quinia.

Evening. Vomiting, purging, and cramps continue. Opium and quinia.

27th. Vomiting and purging slight.

28th. No change. Opium; chicken-water.

29th. Convalescent.

1848. December 24th; 8, A. M. Mr. C., resident eleven years, aged about forty; has had vomiting with choleraïc diarrhœa for fifteen hours; pulse quick and feeble; skin wrinkled; tongue natural; intense thirst; directed mercurials, opiates, quinine, sinapisms.

25th. Choleraïc stools. Quinine; morphia.

26th. Bowels quiet. Nausea. Pulse soft; skin natural.

27th. Choleraïc stools. Quin. and morph.

28th. Convalescent.

1849. November 19th; Morning. Called to see an Irishman; laborer; resident three months; aged about twenty-five; he has had diarrhœa for a week; voice feeble, husky; face and hands bluish, dark; the eyes, surrounded with dark areolæ, are sunken and injected; tongue cool; skin much shrivelled, and cold; pulse thready, variable, often imperceptible; thirst; cramps in all the limbs; copious stools like starch-water; much vomiting; mind clear. Directed sinapisms in succession over the skin generally; camphor; quin.; morph.; caps. in pulv.

Evening. After many vomitings, threw up a mass of potatoes un-

changed, eaten the day before; cramps and purgings diminished, otherwise worse; skin cooler; pulse less distinct.

20th; Morning. Copious milky purging last night, also vomitings; pulse more distinct; skin less cold and less shrivelled. Cal., quin., camph., opium; chicken-water.

Evening. Pulse a mere thread, sometimes irregular, and then imperceptible; respiration slow; skin cool and clammy; tongue dry; no urine since last night; purging arrested; vomits still without a tinge of bile, a sour water; face reddish slightly; thirst diminishing; no pain; sleeps some; has taken about fifteen grs. of cal. one and a half grs. opium, ten grs. quin., ten grs. camph., to-day, with chicken-water; senses natural.

20th. Convalescent; next day this man was sent to the hospital. On the 25th he had diarrhœa. On the 27th he was reported convalescent again.

1849. April 3d. Mr. C., aged fifty-five, resident in New Orleans twenty years, in easy circumstances, leading an active life. He attended to business as usual during the day, although he stated that he had had about a dozen of copious watery stools.

At night cramps came on, and he sent for medical aid, having taken, in the meantime, brandy and laudanum.

Present state: loss of voice, pulse variable, quick, thready, intermitting, and sometimes nearly imperceptible; purging, vomiting and cramps continue.

Extensive sinapisms; pulv. opiat.; pills of quin., cal. and blue mass.

4th; 7, A. M. Pulse fuller, but very unsteady; vomits; no purgations; skin moderately warm; aphonic; rests; chicken-water; claret; ice.

1, P. M. Vomits; two defecations, about three pints, milky, yet rather transparent and inodorous; pulse variable. Pulv. opiat., with chalk, to be followed with small doses of cal.; ice; sinap. extensively over the whole body in succession.

6, P. M. The purging seems to have been arrested by the pulv. opiat., sinap., cal., etc.; no cramps; no urine since yesterday; pulse variable; skin dry and warm.

5th; 8, A. M. Is improving; pulse fuller, more regular; no urine since the attack.

3, P. M. Improves; no urine; catheter introduced with some difficulty—about six oz. urine drawn off. Sinapized surfaces getting very red, and painful.

8, P. M. Pulse firm; skin dry; two small muco-bilious, greenish, fœted

stools, in all two or three oz.; a table spoonful of urine; vomits occasionally.

He ate milk, bread, coffee, etc., this morning, which gave him nausea, heart-burn, etc. Restricted to chicken-water, ice, teas, gruel.

6th; 9, A. M. Pulse full; skin dry; voice returned; slept well last night; no stool; has discharged but a spoonful of urine since 8, P. M., yesterday; since the commencement of the attack, three days ago, has had only about seven ounces of urine; tongue a little tumid and furred. Cal. gr. xii; chicken-water.

3, P. M. Scarcely any urine; costive; ol. ricini was given freely, which failed to operate in three hours; enemata were given, which carried off black, heavy, sedimentary or mud-like stools.

8th. Stools yellowish; urine natural; skin dry; pulse full; tongue cleaning at the tip, being yellow and dark at the base. Well, nearly.

In this severe case of cholera, the treatment apparently saved the patient's life. His wife had just died of cholera. He viewed his own case despondingly.

The mustard plasters which were applied over a great part of the body, though painful at the time, produced no redness or apparent hyperæmia of the skin, until after the subsidence of the choleraïc symptoms, when a severe redness, swelling and pain occurred, which lasted about a week, without, however, producing ulceration.

1849. From March 11th to the 22d, I treated with success five of the crew of the ship Duke, for cholera. These cases assumed, to an unusual degree, febrile symptoms; the choleraïc symptoms, though well marked, were blended with fever.

In one case, that of a man aged about eighteen, the cholera appeared to have reached the stage of collapse. This youth had severe vomitings, purgings, cramps, coldness, wrinkling of the skin, loss of voice, small, irregular, and often imperceptible pulse, intense thirst. The stools were like milk and water, with coagulated streaks and fragments, being inodorous. He was treated with opiates by enemata and by the mouth, with calomel, blue mass, quinine and external stimulating applications; foot baths, sinapisms, frictions. After the disease was checked somewhat, the milky stools continued; when they became a little fœted, they were still thin like water, and sometimes brownish; finally, a little feculent matter in minute points appeared; for nearly a week his recovery seemed doubtful, though he had but little fever following the cholera; his eyes were red with injection, and were dull, heavy and rolled upwards; his tongue tumid, edges and tip red; thirst; sleeplessness; sad and despairing; his pulse became full, soft, gaseous; the

treatment, except quinine and an occasional opiate a few times, was suspended as soon as the choleraïc stools were arrested.

1850. November 9th. A gentleman who had taken no supper, as was usual with him, was attacked with cholera in the night; had had but two evacuations during the day; he had felt cold or chilly. At midnight four or five choleraïc evacuations occurred at short intervals, varying from five to ten minutes, attended with chiliness. Suddenly the nostrils became stuffed or obstructed and dry, so that the breathing was carried on only through the mouth. The salivary secretion was arrested at the same time. Nausea, vomiting and prostration followed. Directed quinia, ten to fifteen grs., morphia, from one to two grs., and a portion of brandy. This dose, though retained nearly an hour, was partly, perhaps mostly, vomited. It appeared to produce no stimulating effect, nor was there marked narcotism. The purging, however, was checked. The bowels were still distended with liquid, and there was an inclination to evacuate them; but this liquid, which evidently fluctuated in the bowels, was reäbsorbed. No alvine evacuation took place for two days. No other remedies were used, except hot foot baths and sinapisms.

1848. December 29th. A young man, whose sister is convalescing from a severe attack of cholera, was attacked in the night with vomiting and copious choleraïc purging. One grain of solid opium was given and retained. The stools were speedily checked. He took no other remedy, and recovered his usual health in a day or two.

In these two last mentioned cases the treatment began as soon as the disease was suspected to be cholera, the full development of which was anticipated, not waited for. Analogy, observation and experience show that such cases are incipient cases of cholera, which are often easily arrested, if not neglected; but if neglected, they usually proceed to a fatal termination, particularly if an epidemic exists at the time. Cholera is not the less real because it is in its primordial stage. It is as real as is a conflagration in its incipient and extinguishable condition.

My experience has furnished more than one case in accordance with the following summary: It is midnight; you are called to see a stout man who, after several choleraïc discharges, is agonizing from spasms which extend to almost every muscle of the body; friends are rubbing down the muscular knots. The apothecary may be distant and asleep withal. Delay is dangerous. There is laudanum or paragoric, and whiskey or brandy in the house. Mix, make an injection, and throw it up the rectum. I have found, sometimes during the cramps, that the sphinter ani was spasmodically contracted, so as to make it difficult to

introduce the nozzle of the syringe. If the medicine be retained, as it will sometimes be, in an hour, or even in half an hour, cramps and danger will have passed away, in some instances, at least.

A middle-aged gentleman, long resident in New Orleans, who had suffered an attack of cholera in 1833, was attacked a second time, May 28, 1849. The only premonitory symptoms he experienced previous to the attack were exhaustion, drowsiness, a burning in the soles of the feet, and yawning, which, for several days recurred about noon; but there had been no diarrhœa. At $2\frac{1}{2}$, A. M., a semi-fluid evacuation occurred, and in about twenty minutes after, watery purgings and vomitings, accompanied with chills, began soon after; cramps in the legs became severe; the stools were like rice-water; no bile was vomited, with a slight exception. Hiccups took place frequently and severely, chiefly after the paroxysmal cramps in the legs subsided; the pulse varied, was rapid and small; the breathing slight, accompanied with a smothering sensation; vomiting always gave temporary relief to the pulse, breathing and nausea. After vomiting, a pill of eight or ten grs. of blue mass was taken for three times; these were usually rejected, though in a broken or dissolved state; half a grain of the sulphate of morphia and two grains of sulph. of quin. were taken without any apparent anodyne effect; mustard and external heat were extensively applied.

At about 8, A. M., a copious draught of mustard and water was taken, which acted promptly, vomiting several times, bringing away much liquid and some mucosity; then gave cal., quin., camphor, pulv. caps., each five grs.; the dose was soon repeated; after which two or three vomitings took place, but the purging was checked. In two hours several doses of tinct. valerian, red pepper and catechu were given. One attack of cramps followed. In the meantime extensive frictions over the body were made with a liniment of vol. alcali and red pepper. This produced an immediate glow or burning on the skin; this burning returned in paroxysms for twenty-four hours.

Thirst was developed strongly in a few minutes after the first liquid stool. This was partially quenched with small portions of ice-water. The vomitings were inodorous and tasteless, (the medicine excepted,) and were easy. The urinary and salivary secretions were suppressed for about ten hours.

Soon after the last stool a considerable quantity of watery liquid was accumulated in the bowels, as was evident to the touch and feelings of the patient; this was retained, and must have been absorbed, as during the following day, there was but one evacuation, which was nearly as

black as charcoal, and was of the consistence of molasses, and did not exceed a quarter of a pound.

A slight salivation, or rather a swelling of the salivary glands and gums followed.

The third day a small, dark, semi-fluid stool took place.

In this case the medication began with the disease.

1849. November 18th. Was called in the night to see a female slave of Mr. ——. This woman, aged about thirty, has at the breast a child; she was two months old. Cramps, vomitings, rice-water stools, passing the latter in bed; aphonic; shriveled, cool skin; pulse small, irregular, intermittent; imperfect respirations; thirst. After many vomitings and purgings, she threw up bread, etc., which had been eaten during the day, still totally unchanged in appearance. Pulv. opiat.; sinapisms in great number.

19th; Morning. Vomitings continue; cramps, purging diminished. Sinap., quin., morphia.

Evening. Purging and cramps checked: vomits much; no urine since yesterday. Chicken-water.

20th. Sleeps; convalescent.

The milk was secreted in her breasts during her disease, causing hardness and tumefaction. Is not milk secreted in cholera? I have observed that this is sometimes the case in both fatal and convalescent cases; also in the dead. This is remarkable, for the secretion of saliva, bile, urine, etc., are arrested in this disease.

25th. Well. No alvine evacuation for five days.

(To be continued.)

PROGRESS OF MEDICINE.

Art. I.—*On the Physiological Mechanism of the formation of Sugar in the Liver:* by M. Claude Bernard. (Academy of Sciences, sitting of March 23, 1857.) Translated from the *Gazette Hebdomadaire de Médecine et de Chirurgie* of April 3, 1857: by M. Morton Dowler, M. D., New Orleans.

In a communication addressed to the Academy, September 24, 1855, M. Claude Bernard pointed out the results which had brought him to conclude, contradictorily to the views which he had previously entertained, that sugar is not *formed* at the very onset in the hepatic tissue by the direct abstraction of any particular element directly from the blood, but that, on the contrary, the production of the hepatic sugar is constantly preceded by the creation of a special matter, capable of giving immediate birth to sugar, by a kind of secondary fermentation.

The object of the present communication (March 23, 1857,) is to announce the positive and isolable existence of the glycogene matter which is immediately preëxistent to the formation of sugar.

It was evident, said M. Bernard, from the facts contained in the communication of 1855, that the glycogene matter created by the liver in the physiological state during life, is susceptible of being changed into sugar, simply through the agency of a ferment, and independently of the vital influence. The experiment of the washed liver, which became, notwithstanding, newly charged with sugared matter, afforded the proof.

The whole difficulty then, consisted in the separation of the matter in question from the tissue of the liver, and its isolation from its ferment with which it is associated.

From seeing that the process of boiling arrested the further formation of sugar in washed liver, I was for a very long time impressed with the false idea that the glycogene matter must be an albuminoid substance, changeable by heat; whilst in reality, it was but the ferment alone which was destroyed by coction; and of this I ultimately assured myself, by reproducing the fermentation in the washed and boiled liver, through the agency of the ferment borrowed from fresh hepatic tissue.

And thenceforth it was evident to me, that the hepatic glycogene matter possesed the property of dissolving in boiling water, and that it

could thus be separated from its ferment, which remained coagulated with the other albuminoids of the liver.

The experiments reported in this memoir, have for their object to prove, that the liver of dogs fed exclusively on flesh, possesses specially, and excluding every other organ of the body, the property of creating a glycogene matter altogether analogous to vegetable starch, and, like it, capable of ultimately being transformed into sugar by passing through an intermediate state, namely, that of dextrine.

In regard to the physiological formation of sugar in animals, it must be necessarily considered, not as a direct chemical contribution from the materials of the blood, at the moment of the entrance of that fluid into the liver, but its production must be regarded as the result of a function constituted by the succession and union of two acts which are essentially distinct.

The first act, which is wholly vital,—so called because it cannot take place without the direct influence of life—consists in the creation of the glycogene matter in the living hepatic tissue.

The second act, which is entirely chemical, and which can be accomplished independently of the vital influence, consists in the transformation of the glycogene matter into sugar, through the agency of a ferment.

In order therefore to the appearance of sugar in the liver, there must be a union of conditions admitting of the occurrence of these two acts. It is essential that the glycogene matter should be created by the vital action of the organ, and it is essential, afterwards, that this matter should be brought into contact with its ferment, by which it is to be transformed into sugar.

The glycogene matter is formed, as are all the products of organic creation, as a result of the phenomena of the slow circulation, which immediately ministers to the process of nutrition. Let us see how the contact of the glycogene matter with its ferment operates in the living animal.

I had at first thought that the ferment was special to the liver, as the glycogene matter itself, and I had even succeeded in isolating it. But seeing again that the liquor sanguinis possesses the property of transforming with great energy, this glycogene matter into sugar, it became impossible to entertain the idea of the localization of the ferment, which, coming probably from the blood itself, can be extracted from the liver. So that, if without the organism we have numerous ferments capable of transforming glycogene matter into sugar, in animals, it suffices to admit the existence of a ferment in the blood possess-

ing also the property of rapidly changing hydrated vegetable starch into dextrine and then into sugar. The observation of physiological phenomena teaches, that in the liver, concurrent with this slow nutritive circulation, there exists another intermittent, variable circulation, the super-activity of which coincides with the appearance of an increased quantity of sugar in the hepatic tissue.

In animals during digestion, the circulation in the vena porta is super-excited, and the transformation of the glycogene matter is much more active; though the formation of this matter does not appear to correspond with this period. This super-activity of the circulation in the vena porta, can be aroused in the absence of digestion, and the same phenomenon of transformation of the glycogene matter, and the appearance of sugar, can be equally made to take place. In hibernating or torpid animals, as frogs, for example, the sluggishness of the circulation which is connected with lowness of temperature, tends to a diminution, and sometimes to a very nearly complete disappearance of the sugar in the liver; but the glycogene matter is always present, as can be proven by our being able to extract it. It is only necessary to put the torpid frogs under the influences of heat, and thus to render their circulation active, in order to see the sugar appear in their livers. By placing the animals anew in a low temperature, we shall find the sugar diminish or disappear, to again show itself when the frogs are again placed in a more elevated temperature.

In warm blooded animals we can also operate through the medium of the nervous system, on the phenomena of the abdominal circulation, and then, secondarily, on the transformation of the glycogene matter in the liver. I have shown that when the spinal marrow is cut or wounded in the region of the neck, below the origin of the phrenic nerves, the hepatic circulation is considerably diminished; so that, at the expiration of four or five hours, there are no longer any traces of sugar in the liver of the animal, the tissue of the organ at the same time, nevertheless, remaining charged with glycogene matter.

I have likewise proven, that by wounding the cerebro-spinal axis in the region of the fourth ventricle, we produce exactly opposite phenomena, the abdominal circulation being thereby highly accelerated, and, consequently, there is an augmentation of contacts of the glycogene matter with its ferment. The transformation also of the glycogene matter becomes so active, and the quantity of sugar carried into the blood so considerable, that the animal, as is known, becomes a diabetic, that is to say, the excess of sugar thrown into the blood by the super-excited liver, passes into the urine.

In these two several conditions, the nervous system evidently acts on the purely chemical manifestation of a physiological phenomenon. But when we analyze the mode of action, we realize that the effects have been only mechanical, primitively manifesting themselves on the motor organs of the capillary circulation, which has had the effect, in the one case, of lessening or preventing, and in the other, of increasing and augmenting the contacts of two substances capable, from their properties, of acting on one another, thus giving birth to a chemical phenomenon which the nervous system indirectly rules, but on which it has no direct or primitive action.

As to the conclusions that we may actually deduce in a general physiological point of view, in regard to the mechanism that we have indicated in the formation of sugar in the liver, it is impossible that we should fail to be struck with the similarity which exists in this respect, between the glycogenic function of the liver, and the production of sugar in certain acts of the vegetable organism.

The formation of sugar in the liver, is effected through a series of distinct transformations, altogether analogous to the successive production of starch, dextrine and sugar, in the seeds of vegetables.

ART. II.—*Amylenic Anæsthesia:* by DR. DEBOUT. Translated from *L'Union Médicale:* by M. MORTON DOWLER, M. D., of New Orleans. (Continued from the May No. of this Journal.)

CASE I.—*Ablation of the Matrix of the nail of the middle finger of the right hand; Cauterization with the red-hot iron; Anæsthesia obtained in four minutes.*—Désiré Debènne, locksmith, entered the hospital of Beaujon on the 3d day of March, 1857; temperament dry and nervous; attacked six weeks previously with a whitlow, the cause of which he could not explain—perhaps it originated from a pinching of his finger, a kind of accident common enough in the trade he follows—came for advice three weeeks since. The nail was detached, with the exception of the portion comprised in the matrix. At this period there was developed at the dorsal extremity of the finger, a bleeding and fungous ulcer, the seat of slight pain, not having any tendency to cicatrization. The following is the present condition: The extremity of the finger in the whole extent, corresponding to the last phalanx, is enlarged, so that the entire finger resembles a spatula in shape. In the situation of the nail there exists an ulceration of an elliptical form, the granulated fungous surface bleeding with the slightest contact. The margin of this

ulceration is tumid and of a livid red, especially at the root of the nail. On raising the posterior border of the ulcer, the base of the nail was seen occupying the whole of the ungual matrix. M. Robert determined to remove the affected parts, and to cauterize with a red-hot iron all the ulcerated surfaces. This little operation being necessarily very painful, the patient was anæstheticized. M. Debout employed the amylene prepared by M. Berthé. The patient being placed in the horizontal position, the apparatus of Charrière was applied, so as to include the mouth and nose, in which had been poured fifteen grammes of amylene, and the patient was instructed to inhale largely. After a few inspirations, the face appeared a little congested, there was a marked acceleration of the pulse and the pupils were slightly dilated. The patient did not speak, and did not evince any disagreeable sensation. The apparatus was a second time charged and with nearly the same quantity, and insensibility speedily supervened, without agitation or muscular contractions—in the quietest possible manner. The quantity of amylene employed may be stated at thirty grammes, and the time required to produce anæsthesia was four minutes.

M. Robert proceeded then to the operation. An antero-posterior incision of half a centimètre was made with scissors, in order to facilitate the excision of the matrix of the nail. The nail was torn out by the fingers of the surgeon, and afterwards two red-hot irons were applied in succession to the bleeding surface. During the operation, which was not of long duration, the patient continued to respire the vapor of amylene, and did not, by either complaint or movements, give evidence of pain. The apparatus being withdrawn, the patient resumed consciousness, and stated that last year he had been anæstheticized by chloroform at the Hospital St. Louis, during an operation performed on the left index finger, which had been crushed by machinery, and that the result had been general illness and cephalalgia for the space of three days.

A few minutes after the operation, Debènne had disagreeable feelings, and exhibited muscular contractions; no nausea, pulse 120. He attributed all uneasines to want of fresh air, and indeed, the apartment in which the operation was performed, was rather contracted and full of the vapor. His disagreeable feelings disappeared in a short time, on opening the window.

Two hours after we saw this patient, who had long before recovered from his disagreeable sensations. He was free from headache, and took soup. We questioned him relative to the sensations he experienced during the inhalation. The patient, who appeared to be very intelli-

gent, replied by comparing his present experience with that of last year, when he underwent chloroformization. According to him, the vapor of amylene is not disagreeable, and does not occasion that prickling of the throat and secretion of saliva which attends chloroform. The dream is one of greater gaity. He thought he was present at a wedding, and went thither on the American railroad. His impression was, that he had spoken during his whole sleep, though in fact he had not uttered a word. He had heard a part of the conversation which had taken place during the operation, and recalled perfectly what M. Debout had said to M. Robert, when it was remarked that at times the patient had his eyes open. The sleep came on abruptly. The patient said the sleep had been much more tranquil, and had been attended with much less anxiety than when he had been somnolescent from chloroform, but that the anæsthesia had been less complete. Each time that M. Robert touched his finger with the cautery, he did not indeed feel pain, but very disagreeable agitation. The absence of cephalalgia and the persistence of appetite, appeared to him the principal reasons for preferring the new agent.

CASE II.—*Disarticulation of the last phalanx of the index finger; Resection of the extremity of the second phalanx; Anæsthesia by amylene in two minutes.*—A man, *æt.* 65, strong and vigorous, in consequence of a puncture on the palmar surface of the finger by the fin of a fish, was affected with whitlow. The inflammation occupied the integuments, the tendinous sheath of the flexor, and even the articular surfaces, which are movable and give out a crepitating sound when moved. M. Robert, after having cut an oval flap, disarticulated the last phalanx, and finding the head of the second bone unsound, it was then resected.

For this operation, M. Debout put the patient under the influence of amylene. Anæsthesia was obtained in two minutes, and was continued to the end of the operation. During the whole time the patient was plunged in a profound sleep, which supervened without shaking or agitation. As soon as the apparatus was applied to the mouth, the patient respired largely and slept tranquilly, as one who had undergone fatigue. We noted nothing special, excepting an acceleration of the pulse, which rose from 72 to 90. After the operation, and so soon as the apparatus was withdrawn, the patient awoke. He did not appear at first to be able to render an account of what had taken place around him. But this state of astonishment, which showed itself in almost all our patients, at the termination of anæsthesia, is transient, and is completely dissipated in less than two minutes. This man, when questioned in regard to his sensations, replied that all had been to him a profound

sleep, save only that he had a vague consciousness of the first incision, and he recalled the fact that at this period he had closed his teeth, but instantly after slept, and felt nothing more. An hour after we dressed the wound, when the patient told us that he did not experience any pain, and that when the finger was touched, it did not hurt him more than it would have done before the operation. The quantity of amylene employed was about twenty-five grammes.

Case III.—*Phlegmon of the hand; Incisions; Anæsthesia with amylene in two minutes.*—Nicholas Morbaux, *æt.* 35, robust constitution, was admitted into the Hospital Beaujon, affected with a suppurated phlegmon, and it was proposed to M. Debout by M. Robert, before opening the abscess, (March 6,) to put the patient under the influence of amylene. The patient inhaled without disgust, and breathed fully and regularly. In less than two minutes he was insensible to the prick of a pin and to a pinch of the integument. The pulse was accelerated, but less remarkably so than in the most of our experiments. No sign of contraction or agitation appeared. The operation consisted in a large incision comprising the whole thenar eminence, and in a second incision at the base of the nail. The patient was completely immovable under this double use of the bistoury. Inhalation was suspended at the end of three and a half minutes, and in about half a minute the patient was partially awake, appeared silly, and had an unsteady look. He replied, however, exactly to the questions addressed him, and pretended that he had felt perfectly all that had been done to him. But suddenly, and at the end of the second minute, all evidence of stupor disappeared. He looked at his hand, and could not restrain his surprise on seeing the two incisions from which the blood was escaping. There was no *malaise*, no agitation after the use of the vapor, and the pulse speedily returned to its normal condition. The patient slept almost the whole day. When interrogated in the evening, he said that he had felt absolutely nothing during his anæsthesia, but had had agreeable dreams. Like the other subjects, his appetite rapidly returned.

Case IV.—*Prostatic Calculi; Lithotomy; Anæsthesia by amylene; Inhalation for three-quarters of an hour.*—Jean Boucher, *æt.* 62, feeble constitution, entered into the hospital to be treated for prostatic calculi, the existence of which produced incontinence of urine, etc.

M. Robert proceeded to the extraction on the 6th of March. The patient, a man of a pusillanimous and irresolute character, demanded anæsthesia. Amylene was resorted to, but the effect could not be produced in less than half an hour. Powerfully impressed, and a prey to

a profound terror, the patient inhaled but very imperfectly, in spite of the orders given him, and it was necessary to tell him again and again, that the operation would not be commenced till he became insensible. If we except the acceleration of the pulse, no important phenomenon occurred during this space of time. The vapors did not seem to give the patient inconvenience, producing no cough. Anæsthesia having been obtained, M. Robert proceeded to the operation, and the inhalation was continued.

Dnring the first half of the operative proceedings, the patient moved not, but the inhalation being suspended but a moment in order to charge the apparatus again with the anæsthetic, and this moment being prolonged, sensibility reäppeared, and the vapor appeared to lose its original power; the patient became agitated, and cried out, and, at the same time there appeared contractions of the muscles of the thighs.

When the operation was finished, the inhalations discontinued, having been kept up for three-quarters of an hour, thirty-five grammes of amylene having been used, the patient was in full consciousness almost immediately. He said he had not felt the incision made with the bistoury in the perinæum, but that he was conscious of the removal of the calculi, without, however, feeling great pain. This sensation, however, was not very exact, for the patient asked, with great anxiety, to be disembarrassed of his calculi, and M. Robert was forced to plunge his finger into the wound, to prove to him that the operation was terminated.

For about an hour the patient found his breath exhaling the odor of amylene, and he had a light cephalalgia for half an hour. He had no nausea, nor bad taste in the mouth, and he took nourishment on the same evening.

Since the operation, Boucher is doing well, the pain which existed before the extraction of the calculi having entirely disappeared. The long continuance of the inhalation has not resulted in the phenomena which manifested themselves immediately after the operation, and disappeared at that period.*

The mental as well as unhappy physical condition of this patient, presented to us a special case, and we have not hesitated to sacrifice the *tuto* to the *cito*, and even to the *jucunde*.

This long continuance of inhalation of amylene is exceptional, in proof of which we here give a summary of eleven other *amylenizations:*

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* These cases have been collected by MM. Bernandot and Dayo, internes of the hospital.

2 Cases,	Anæsthesia in $1\frac{1}{2}$ minutes,	Male,	æt. 25	and	28 years.
3 "	" 2 "	"	" 18,	34,	35 "
2 "	" 3 "	"	" 35,	Female	13 "
2 "	" 4 "	"	" 23.	"	23 "
1 "	" $4\frac{1}{2}$ "		"	"	30 "
1 "	" 6 "		"	"	13 "

This rapidity of action is owing exclusively to the use of an apparatus, since in the two cases published by M. Tourdes, in which the anæsthetic was administered by means of a sponge and cone of paper, the period was much longer. Another circumstance of importance in relation to the apparatus is economy, as a supply of amylene is at present obtained with difficulty, and its price is high. It will be seen that, during an inhalation prolonged for three-quarters of an hour, as in Case IV, we have used only thirty-five grammes, whilst Professor Rigaud has consumed one hundred grammes in fifteen or twenty minutes. The apparatus also prevents the diffusion of the anæsthetic vapor in the room, not only incommoding the patient but also the surgeon and his assistants.

Art. III.—*On Infantile Thrush.* By Dr. Lebarillier, *Physician to the Bordeaux Alms House.* Translated from the *Journal de Médecine de Bordeaux,* of *March,* 1857, for the New Orleans Medical and Surgical Journal. By J. P. Barbot, Apothecary, New Orleans.

[*Concluded.*]

[According to the Mortality Statistics of the United States Census for the year ending June 30th, 1850, the deaths from thrush amounted to 424. Omitting 16 in seasons not designated, the residue is distributed through the seasons thus: spring 73; summer 110; autumn 156; winter 69. Of this number 91 died in the first week of life, and 178 over one week and under one month; one month and under three months, 65; three months and over, 38; unknown, 52.—Ed. N. O. Med. and Surg. Jour.]

PATHOLOGICAL ANATOMY OF THRUSH.

As sequelæ of thrush, the digestive canal often exhibits alterations which it is important to point out, and which show, in the severe form of this disease, the relation existing between it and other affections of the digestive tube.

When thrush is simple and even when confluent, if the child dies of

of an intercurrent disease, it rarely happens that the mouth exhibits after death any very appreciable changes. If thrush had been very confluent at the time of death, this production, instead of being tenacious and difficult to peel off as it is during life, will have the appearance and consistence of a thick mush, of a dirty grey color, easily datached, either by the finger or the scalpel. I have never met with any ulceration or softening of the mucous membrane; in one or two instances, in cases in which the disease had been prolonged, it seemed to me to be paler and less injected than in the healthy state. The tongue was also paler, and exhibited manifest dryness. Billard and Valleix have mentioned pretty numerous alterations in the mouth: erosions, ulcerations, gangrene. The pharynx and œsophagus have exhibited much more important changes. M. Seux has noticed therein every change from a simple injection up to ulceration and even total destruction of their parietes by gangrene. In twenty-six post mortem examinations made by him, thrush had invaded the pharynx thirteen, and the œsophagus fifteen times. If we add to these observations the twenty-two cases examined by Valleix, it will be found that thrush had spread twenty-three times to the pharynx and thirty-two to the œsophagus. I have found thrush in the pharynx only in one case, and that in ten autopsies. I have not seen it in the œsophagus.

It is particularly when thrush has been very confluent and has invaded the whole of the mucous membrane, that the thrush formation is met with on the pharynx and œsophagus after death. Most generally it is easily detached. In most cases the mucous membrane is healthy; in others, on the contrary, it is red and injected with blood. M. Seux has observed *softenings* and *ulcerations* in the pharynx and œsophagus; he has also called attention to a peculiar condition shown by the mucous membrane in some cases; this condition is the first one described by him. The mucous membrane becomes *dense*, *resisting*, and offers a *parchment-like* aspect. This alteration which is only formed under a thick coat of thrush, is the consequence of inflammation. On two or three occasions, MM. Lédiberder and Seux have met with ulcerations on the mucous membrane of the œsophagus, concealead under the thrush-plates. These cases are very rare, and the epithelium is almost always unchanged, even under the thickest coats of the cryptogamous product.

The stomach exhibits traces of this cryptogamic production more rarely than the mouth, pharynx or œsophagus, but it evinces oftener than they do, alterations of an inflammatory nature, from an injected condition up to a jelly-like softening. The liquids found in the stomach also vary in consistence and appearance, i. e., mucosities, yellow or greyish matters and curdled milk.

In twenty-six post mortem examinations, M. Valleix found the stomach diseased twenty times ; M. Seux in fourteen instances out of twenty-six autopsies. In ten subjects examined by me, I found three instances of diseased and a slightly hyperæmic stomach. I have never met with thrush in the stomach. The stoppage of thrush at the cardiac orifice or above it had caused it to be denied that thrush ever was produced in the non-epithelial digestive viæ; but the observations of M. Lébut—those of Billard, of Valleix and of M. Lédiberder, leave no doubt upon the subject. By adding the number of post mortem examinations made by these gentlemen to those made by M. Seux, we have a total of 123 cases, out of which thrush was found in the stomach seven times.

The frequent occurrence of disease in the small intestine in severe thrush is very remarkable. The alterations met with therein are very similar to those found in enteritis and typhoid fever. The mucous membrane is often red and inflamed. This redness exhibits itself in variable forms and degrees of intensity. In some cases there is softening. Ulcerations have been found also. The glands of Peyer are red and prominent or ulcerated. The small intestine generally contains some thin, yellow fluid. The ileum seems to be the part most generally affected. Thrush is found in the small intestine more rarely than even in the stomach. In the 123 post mortem examinations made by Billard, Valleix, Lédiberder and Seux, they only found it four times. The large intestine is less often affected than the small; in twenty-six cases examined, post mortem, by M. Seux, it was diseased seventeen times, three times alone, and fourteen times in connection with the small intestine. In two cases I have also found it red and its mucous membrane softened. Ulcerations occur more rarely therein than in other portions of the digestive tube. In five cases, M. Seux noticed on its mucous membrane a multitude of white granulations, of the thickness of a millet seed, embedded in its substance. These granulations have been found on the healthy mucous membrane also. This morbid alteration, pointed out by Valleix, does not appear to be anything else but an engorgement of the cryptogamic mucous membrane, which, under the influence of the disease, becomes developed and inflamed. The *rectum* is often invaded by this inflammation. Thrush in the large intestine has been pointed out by Billard, Valleix and M. Seux; their observations show one case in forty-one autopsies. MM. Bouchut and Ch. Robin have seen thrush around the margin of the anus. The *mesenteric glands* have been found altered in their appearance; this alteration coincided with the inflammation of Peyer's glands. No important observations were made on the *liver*, the *spleen* or the *kidneys*.

DIAGNOSIS.

Generally speaking, thrush is easily recognized: the development of the lingual papillæ, the appearance on the tongue of characteristic white spots, the rapidity with which these spread to the buccal mucous membrane, the secondary symptoms of inflammation of the bowels, easily indicate thrush in early infancy. The diseases with which it might be confounded, syphilitic apthæ and ulcerations, differ from it in their mode of evolution, their appearance and their duration. In thrush, at another period of life, there may be some difficulty in distinguishing very confluent thrush from ulcero-membranous stomatitis, which it resembles somewhat. The microscope would dispel all doubts, if any could exist; as one of the products, thrush is, as we have already shown, of vegetable origin, and the other is of a fibro-animal nature. If we consider thrush as confined to the œsophagus and stomach, as Valleix has cited an instance of, the diagnosis will be difficult, unless the child should vomit up shreds of thrush. I have never met with cases in which there had been any secretion of thrush in any portion of the intestinal tube, unless it had first appeared in the mouth. The symptoms in that case would be those of enteritis. Tenderness on pressure, pointed out by Valleix as indicating the presence of thrush in a precise portion of the intestine, is not peculiar to thrush, and the passage in the stools of some portions of thrush would not indicate in a positive manner the existence of thrush in the bowels; in these cases it may have come from the œsophagus. Finally, our observations, including those in hospitals for children, lead to the conclusion that thrush in the mouth is easily recognized.

PROGNOSIS.

Between the belief of Valleix, who has seen thrush almost constantly fatal, and the opinion of M. Bouchut, who pretends that thrush has never killed any one, where shall we find the truth? The prognosis of thrush must vary according to the localities in which it is observed, and the nature of the symptoms it exhibits. Simple, discreet thrush is everywhere innoccuous and does not appear ever to have caused any unpleasant consequences. Such is not, however, the case with confluent thrush, complicated with enteritis.

The difference in the results obtained in Paris, and in the hospitals in the south of France, in Marseilles and in Bordeaux, is very remarkable.

In Paris, Baron lost one hundred children out of one hundred and forty; Valleix, twenty-two out of twenty-four; MM. Trousseau and Delpelch saved twenty-three out of forty-eight.

In the Marseilles Charity Hospital, out of four hundred and two

cases, M. Seaux lost but twenty, and in the year 1854, out of two hundred and thirty children, thirteen only died of thrush.

In Bordeaux, from September 1st, 1855, to September 1st, 1856, out of three hundred and fifty children attacked by thrush in the nursing wards, I have found but eighteen deaths due to thrush.

To what influence are we to attribute so great a difference in mortality? Is it to climate, or to the peculiar conditions in which newly born children are placed? M. Seux, in his excellent work, gives an explanation that seems to me the most rational on the subject. In the Foundling Hospital of Paris, children attacked by thrush, are separated from their wet-nurses for fear of contagion. It will be readily understood, that a child already ill, when deprived of its natural nourishment, will soon perish. What would seem to prove this, is the fact that, in the Necker Hospital where this method is not followed, the mortality is less.

Generally speaking, thrush is more or less severe, according as the intestinal symptoms are more or less serious; children almost always die in consequence of the enteritis. The disease is also much more severe in our hospitals than elsewhere. I have never seen thrush terminate fatally in private pratice.

TREATMENT.

The treatment of thrush must depend upon: 1st, whether it be simple and discreet; 2d, whether it be confluent and complicated by enteritis.

The first thing to be done is to withdraw the child from the causes which have developed the disease. If the thrush be simple and discreet, frequent applications of mucilaginous water to the mouth by means of a pledget of lint will be sufficient in most cases. M. Guersant advises the addition to the infusion of malva, of althæa or flax-seed used for the purpose, of one-fourth part of liquor sodæ chlorinatæ or of lime-juice. He has also successfully used a very weak solution of alum. These means, in connection with full baths, will always insure a cure in simple thrush.

In the severe and confluent form, with enteritis, the inflammatory symptoms must be carefully watched. The treatment should be as much directed to the intestinal inflammation as to the development of thrush. To combat the confluence of thrush, vegetable acids have been recommended (Dugès); a solution of sulphate of zinc, of one gramme to thirty grammes of lettuce water (Keucker); calomel mixed with sugar, and given in half grain doses two or three times a day (Brettonneau).

In the Necker Hospital, M. Trousseau always used, and constantly with success, the following applications:

Borax,............................ 5 to 15 grammes.
Honey,............................ equal parts.

The diseased parts were to be moistened three times a day with the above by means of a pledget of lint. (Bouchut, *op. cit.*, page 478.) The nitrate of silver in stick was also used to cauterize the thrush formation in its confluent form, and to arrest its development. A new application, the *chlorate of potassa*, employed with success by Dr. Isambert, in diphtheritic affections of the mouth and throat, was tried in the Bordeaux hospital, either as a *collutorium* mixed with honey, or given internally in a mixture. We have derived no benefit from its use. This was also the case with most of the treatments mentioned above. Mucilaginous decoctions, either simple or with slight additions of alum or of sulphate of zinc, (one gramme to two hundred of the decoction) and full baths constituted all the treatment for thrush in our hospital. This method has always succeeded with us. The child should take the breast less often in order not to fatigue its mouth, or it should be fed with the nurse's milk given in a spoon.

If the thrush be complicated with enteritis, you should insist upon the frequent exhibition of full baths, mucilaginous applications, warm fomentations and poultices of flax-seed meal over the abdomen, and starch injections. The preparations of opium and of bismuth have not appeared to me to be called for in these cases.

The *erythema* and *ulcerations of the malleöli* should be treated with emollient washes, simple dressings, and in seeing that the children be *kept as clean as possible.* Independently of this curative treatment, the physician in hospitals for children should attend to another; the object of which would be to prevent, if possible, the production or the spread of this disease—in a word, a prophylactic treatment.

In our large cities, Paris, Marseilles, Bordeaux, where there are alms houses and hospitals for infants, thrush exists endemically. In Bordeaux, at least, it is continually raging in our wards. To what are we to attribute this permanence of the disease, unless to the crowded condition and ill distribution of our hospitals? This important fact has attracted the attention of our learned board of administrators on hospitals, and in a remarkable report, M. Gintrac, director of the Medical College, whilst he pointed out the evil, at the same time offered the remedy, which consists in a better construction and distribution of an hospital for children. Our alms house consists in a large room in which are forty beds or cribs almost always occupied, and we have no infirmary to

separate the sick from the well. In order to guard against a disease which, if it does not carry off many children, reduces them to a condition of weakness and debility which it is often very difficult for them to get over, it appears to me indispensible that they should be separated from one another, and be promptly sent away into the country.

The prophylactic treatment then should consist in giving free access to fresh air in the wards, in placing the cribs and beds further apart from one another, in isolating the sick as soon as they are attacked, and in changing the diapers and clothes as soon as they are wet. The nurses (as counselled by M. Seux) ought to take exercise in the fresh air several hours during the day, and take a bath once a week. Every time they will have given suck to a child seized with thrush, before suckling another, they should wash their nipples several times with chlorinated washes, so as to destroy the spores of the cryptogamic production that may remain concealed in the folds of the nipple. The child should never be weaned from its natural suck, for the nursing bottle and panadas are injurious to children suffering with thrush.

ART. IV.—*Researches on the Anæsthetic Effects of Amylene.* By M. G. TOURDES, Professor in the Medical Faculty of Strasbourg. *Translated from the Gazette Médicale de Strasbourg*, by M. MORTON DOWLER, M. D., New Orleans.

[The present is a second article by the same able professor, the first having already been translated by us for the May number.]

AMYLENE.

THE history of Amylene has been enriched with new facts, which will still better enable us to appreciate the value of this anæsthetic and the special indications for its use. In addition to the article which we contributed to the *Gazette Médicale de Strasbourg* for February, (the same article which we translated for the May number of this journal from the *Gazette Hebdomadaire de Médecine et de Chirurgie* for March 6, 1857—*Trans.*) we here produce a second article which is demanded by further observation in relation to Amylene. Our researches bear on the following points: 1st, the purity of Amylene; 2d, the proper mode of Amylenization; 3d, the application of Amylene to obstetric practice, and its medicinal employment; 4th, its application to anæsthesia in cases of children.

I.—THE PURITY OF AMELYNE.

This question is of paramount importance; and it is a complicated one, and less easy of solution than might at first be supposed. M. Hepp in his first note recommends washing the Amylene with sulphuric acid. Numerous experiments, made on a large scale, soon proved that sulphuric acid does not fail to alter Amylene, and even to destroy this substance. When Amylene is washed with one-fifth part of sulphuric acid, a volatile product is obtained, the odor of which is no longer that of pure Amylene, the product presenting, in a feeble degree, an after-smell resembling sassafras wood, and which persists for an instant after the true odor of Amylene is dissipated. If the mixture be made in equal parts, the Amylene is decomposed, sulphurous acid is disengaged, and no trace of the odor of Amylene remains. The residuum is a body which is entirely different, and the nature of which Mr. Hepp has not been able to determine.

The result of these experiments go to show that the use of sulphuric acid ought to be abandoned, or, at least, that it ought to be used only feebly, and at the very commencement of the process. The only rational and certain means of obtaining pure Amylene is by repeated distillation. It is proper to separate the products into parts, and to collect only the portions which are most volatile, by which means the Amylene cannot fail to gain in relation to its purity and odor. M. Debout, chief editor of the *Bulletin Thérapeutique*, has borne witness to the advantage of this procedure.

The Boiling Point.—This question which seems to have been formerly determined is still a subject of controversy. The boiling point, according to M. Hepp, is between 20° and 30°, he not having, up to the present time, been able to determine the point more precisely. The specimens employed in the investigation of this subject were as pure as possible, being rendered so by repeated distillations and divisions of the products. The following facts have been determined: at 20° the ebullition commences, and it obtains its maximum between 30° and 35°. It continues without interruption up to 40°, and even higher, without the possibility of determining, with fixity, the point at which the continuance of ebullition is unaccompanied with further elevation of temperature. M. Debout (*Bulletin de Thérapeutique, March*, 1857, *p.* 214,) has determined the variability of the boiling point. "The flask of Amylene," says he, "which has been sent to us from London by Dr. Snow, boils at 31°, and that which is prepared by the house of Ménier, of Paris, has its boiling point at 28°. Neither the one nor the other, then, is chemically pure. The greater the volatility of the drug, the more rapid

its action, which, in an anæsthetic point of view, is an incontestible advantage."

Does Amylene change its properties during ebullition, as is the case with many other of the hydro-carburets? Nothing, it is true, up to the present, goes to demonstrate the affirmative; but M. Hepp has found good reason to consider it very probable.

Distilled Amylene has been collected separately at 33° and upwards, and it has been obtained at a higher temperature, rising to 35° or more. The first product has a feebler and more bland odor. This is the sort of Amylene which is employed for medical uses at Strasbourg.

The purity of this product, then, is with great difficulty tested by the boiling point which is destitute of the degree of fixity necessary to serve as a guide. The density will doubtless furnish some guide, but this may vary according to the particular fraction of the product tested. The indications are wanting when we attempt to characterize a *type* of Amylene.

It has been attempted to determine by the odor of Amylene, when a small portion is evaporated from the hand, the question of purity. Up to the present, the process of repeated distillations, is the only guaranty of the purity of Amylene. By this test of evaporation, Amylene adulterated with foreign substances, as chloroform or alchohol, may be very readily distinguished.

M. Hepp now obtains with great facility, and at a reduced price, an abundance of Amylene. He employs in its preparation, the chloride of zinc, to the exclusion of every other reägent. This chloride is so highly concentrated, that it acts in masss, by refrigeration. This body is to be left in contact with Amylic alcohol for two days, keeping the two bodies in the solution at a low temperature. The first distillation is then practised, which disengages all the volatile products; after which a second distillation is to be made, at a temperature rising to 100°, which is to be followed by a third at 50°. The distillation is to be terminated between 25° and 33°, by collecting the most volatile parts of the products. The price of Amylene prepared at the civil hospitals of Strasbourg is from sixteen to eighteen francs per kilogramme. This is the actual price of chloroform at 4500° of density, prepared in the same establishment. Hence, it will be seen that the price of Amylene is no longer an obstacle to its general use.

II.—MANNER OF EMPLOYMENT.

The great volatility of Amylene is a difficulty in the anæsthetic application of that agent. Precaution ought to be taken that there be not too great a waste of the anæsthetic, and that there be a concentration of

the vapor in the respiratory passages. The greater number of the physicians who have noted the quantity employed during their operations, speak of the amounts as varying from thirty to one hundred grammes, and even more. Many operators have failed in their attempts, owing to the great volatility of this substance, and the imperfection of their operative appliances. It is important, then, to regulate its employment. Is it necessary, in the application of Amylene, to have recourse to apparatus analagous to that which is required in the use of ether? Or can we, on the contrary, administer the new agent by appliances as simple as those which are found sufficient in the administration of chloroform? This question it is of importance to determine; and perhaps the future reputation of the drug depends on the solution. We are of the opinion that the necessity which exists for the use of an apparatus, will greatly restrain the anæsthetic use of Amylene. The line should be drawn between children and adults on this point. In relation to the former, the question is already solved, for an Amylened sponge placed in a cone of waxed cloth, open at the apex in order to admit the air, the sponge being placed near the child's mouth and nostrils, is all that is necessary to the production of anæsthesia, with certainty and rapidity. The evaporation is much less rapid than with the paper cone, or with a simple compress. Indeed, the congelation which so rapidly covers the sponge in the paper cone, or on linen, is greatly diminished in the cone of waxed cloth. It is very true that we have consumed great quantities of Amylene—thirty-five, twenty and fifteen grammes—in cases of children; but with any attention to economy, we might have succeeded with much less. In operations of this kind, but little attention is paid to economy, and the amount employed in no way corresponds with the amount actually utilized. I have no doubt that, with common precaution, the anæsthetic dose in children might be reduced as low as fifteen grammes. In respect to adults, the problem is more difficult, and does not appear to be fully solved. It has been fully shown that by means of a simple handkerchief or compress, as is applicable in the use of chloroform, success cannot be obtained without the employment of enormous quantities of Amylene. This facility in the administration of chloroform weighs immensely in its favor, and counterbalances many inconveniences; but it must become a subject of deep regret, if any consideration of this kind should operate against so useful a discovery, and that the consideration of innocuity should be lost sight of in view of mere facility of application.

By means of a sponge surrounded by a double compress of waxed cloth, Professor Rigaud has often succeeded. In six cases the success

was complete; but in three the Amylenization was insufficient, and in the amputation of a leg it was found necessary to abandon the new agent, and resort to chloroform. Professor Schützenberger, on the other hand, has produced anæsthesia in an adult in two or three minutes, and at two doses with twenty-five grammes of Amylene poured on a sponge surrounded by a compress. Dr. Debout has declared in favor of the use of apparatus, employing that of Charrière, so modified as to contain double the number of turns of the diaphragm contained in the body of the instrument, in order to afford a greater surface for evaporation. This promises to realize great economy in the use of Amylene. With one hundred grammes of this substance he has produced six or seven anæsthesiæ. The result obtained by M. Debout, in eleven cases, shows the efficacy of his mode of administration.

Notwithstanding all this, however, the employment of apparatus is a difficulty and an embarrassment; and may it not be attended with danger? In the use of anæsthetics every thing which can lead to restrain the respiration ought to be avoided; and on this score, perhaps the use of apparatus may be attended with evils. The apparatus is a subject of preöccupation, if not of fear, on the part of the patient; and, on the part of the physician, it gives rise to a complication, of which he would fain be relieved.

This discussion is important for the future of Amylene. We may sum up the subject in the following terms: 1, in case of children the question is solved, apparatus being useless and the cone of waxed cloth being sufficient; 2, in case of adults, they may be anæstheticized in the same manner; but the interposition of an apparatus will perhaps render anæsthesia more prompt and easy by regulating the employment of Amylene. This practical point must be better determined by future experiment.

III.—OBSTERIC APPLICATION.

In England Amylene has been employed with success for the annihilation of pain during the last period of labor; and it has been found that the anæstheticism has in no wise tended to enfeeble the uterine contractions.

In the obstetrical clinic of M. Stoltz, Amylenization has been resorted to in two cases.

Case III.—*Accouchment; Incomplete Anæsthesia; Unconsciousness of pain during the last throes of labor.*—Madeline W., *æt.* 26, pregnant for the second time; entered the hospital on the 23d of February. The labor commenced at two o'clock, and at nine the neck of the uterus was effaced, the os tincæ dilated, and the head was engaged in the superior

strait. The labor continued with regularity, and at a quarter past one o'clock, A. M., when the head rested in the hollow of the sacrum, M. Levy, *interne* of the service, had recourse to Amylene, which was poured in a scent-bag in form of compress, and enclosed in double waxed cloth. The woman uttered cries, became rigid, and after five minutes inhalation, anæstheticism began. A contraction of the womb came on, the woman moaned, but much less strongly than before the inhalation, and at half-past one, the Amylene was renewed. In five minutes the woman became unconscious, and a contraction came on with some moaning. At two o'clock the head was expelled during a third inhalation, which also produced unconsciousness. The woman cried out at the moment of the termination of labor. When questioned with regard to her sensations, she said she had experienced vertigo, ringing in her ears, and a burning sensation in the pharynx. She could recall all that had passed, but she had no sense of labor pains. The child was living and healthy. The anæsthetic was thrice resumed in this case; the anæsthesia was incomplete, transient, but sufficient to destroy, or at least, to greatly mitigate the sensation of pain. The anæsthetic had no effect on the uterine contractions.

CASE IV.—*Insufficient contraction*; *Incomplete Amylenization; Application of Forceps.*—Catharine H., *æt.* 24, pregnant for the second time, entered the hospital March 14th; duration of labor twenty-four hours; began with the irruption of the liquor amnii; pains at long intervals and slow, but at each contraction the head appeared at the vulva. Professor Stoltz deemed it proper to resort to Amylene, to spare the woman the last pangs of labor, which he applied in the manner described in the preceding case. After a few minutes inhalation, the woman struggled and endeavored to tear away the apparatus; and in ten or twelve minutes she appeared to be affected with a kind of inebriation, in consequence of which she sunk down, without, however, losing consciousness, and without falling into muscular relaxation. No uterine contractions occurred during Amylenization, frictions strongly made over that organ, not bringing about any repulsive pains, the womb contracting only for an instant, to fall again into relaxation. M. Stoltz found that the pulsations of the fœtal heart descended as low as sixty in a minute, and he determined to bring the labor to a close by the use of the forceps. The application of the instrument was effected without difficulty, and the woman felt neither the introduction of the forceps nor the tractions necessary to delivery of the head, her declarations being distinctly made on this point. During Amylenization she experienced a degree of vertigo and dryness of the mouth. The child was living, but

born long before its time. A few moments after delivery it fell into a state of asphyxia, from which it promptly rallied. Two days after the operation, the woman was attacked with peritonitis. M. Stoltz noticed in this case the rare symptoms of dryness of the tongue and lips. Had this symptom any connection with Amylene as producing dryness of the mouth, in opposition to chloroform which increases the flow of saliva? It is not probable that Amylene had anything to do with the inefficiency of the uterine contractions, and in the threatened asphyxia of the child. The birth was premature, and the labor continued forty-eight hours before Amylene was employed.

These two cases are but first attempts, resulting in incomplete success, but which fully authorize new trials of Amylene in obstetric practice.

The employment of this anæsthetic in general medical practice, is a subject demanding consideration. It is not to be doubted that this substance may be made to render important services in a certain class of diseases, and that it may be made to supercede chloroform in cases in which it is important to superinduce a light anæsthesia, which is rapidly dissipated. Professor Schützenberger has had the kindness to communicate to us the following case:

CASE V.—*Periodical Spasms of the Limbs; Amylenization; Cessation and return of the symptoms; Duration of the attack diminished.*—X., *æt.* twenty-two, was laboring for some days under periodical attacks of spasms, affecting the inferior extremities, and which sometimes invaded the superior extremities also. These symptoms appeared to originate from a chronic affection of the sheath of the spinal marrow. The attacks reäppeared about every fifteen hours. Left to themselves, they lasted about twelve hours. They disappeared promptly under chloroformization; but at the latest attack, the spasms returned at three distinct paroxysms after the anæstheticism ceased.

On the 18th of March the patient was attacked at half-past seven o'clock in the morning, and the left lower limb was violently contracted, the thigh being bent on the pelvis, and the leg on the thigh, the spasms extending to the toes, sensibility being completely abolished. In place of employing chloroform as before, M. Schützenberger resorted to Amylene, ten or twelve grammes, being poured on a sponge fixed in the vase of compress.

In about two or three minutes anæsthesia was complete, it being produced as rapidly, at least in this case, as it had been by chloroform. During the inhalation, spasms of the pharyngean muscles were observed, and the relaxation of the limbs was preceded by efforts to vomit. The contractions ceased under the use of Amylene, and the patient remained

plunged in a profound anæsthetic sleep. For a minute from the moment of relaxation of the limbs, intelligence appearing, correct replies were made to the question propounded. Five minutes after, the cramps reappeared, with all the intensity they exhibited before the amylenization.

A renewal of the application of Amylene was resorted to in this csae, in the same doses, but the drug was not pushed to anæsthesia, owing to the violent spasms which supervened. During two trials the pulse was sensibly accelerated — no trace of cyanosis was observable. The attack of spasms did not appear till noon, its duration was shortened, and no consecutive unfavorable result occurred.

IV.—ANÆSTHESIA OF CHILDREN.

The efficacy of Amylene in the production of anæsthesia in children, appears to be well established in practice. We shall proceed to the exposition of the facts on which this view is based, and to deduce from these facts conclusions touching the value of Amylene, and the indications for its use in infantile practice.

Doctor Giraldès, *agrégé* of the Faculty of Paris, has communicated to the Surgical Society the results of twenty-five cases of anæsthesia produced in children by Amylene. The results obtained are conslusive in favor of this substance. The ages of the children were from three months to ten years. The Amylene used was prepared by M. Rousseau. The time required for anæstheticism varied from one to three minutes. All of the children respired the drug without effort, and without much resistance. The respiration was calm and normal, and anæstheticism was obtained without nausea or vomiting; though Amylene had been many times resorted to in a short time after a light repast. Neither paroxysms of coughing, spasm of the larynx, closure of the jaws, nor cephalic congestion was observed. The resuscitation was rapid, the reëstablishment prompt and complete, without consecutive symptoms.

We have pushed our inquiries into the clinic of the diseases of children. We shall now give, at some length, five cases which exhibit the effects of Amylene, and show its efficacy and innocuity.

CASE VI.—*Child seven months old; Phimosis and Ulceration of the Prepuce; Amylenization of eight minutes continuance; Circumcision.*—Eugène K., aged seven months; brought to the hospital March 7th. General phimosis with balanitis, and swelling of the prepuce, which displayed at its free margin an ulceration indurated at the base. The scrotum presented at its anterior part two superficial ulcerations, resembling mucous pustules, the opening of the prepuce contracted, and the emission of urine accompanied with acute pain—the general health

unaffected. Circumcision was decided on, and Professor Michel took charge of the operation.

The little patient resisted, wept and fretted without exhibiting however, any sign of well-marked repugnance. Its cries became feebler and feebler, and in about one minute and three-fourths, it became somnolescent, the eyes being slightly open, the respiration accelerated, and the pulse eighty. This sleep was not accompanied with muscular relaxation, but the limbs did not acquire any ridgity. The Amylene was withdrawn and the operation was commenced. The prepuce was removed during this first anæsthetic period, but in less than a minute the respiration became accelerated, and the little patient exhibited signs of sensibility. The sponge was again charged with the Amylene, and the cone was newly applied to the face, and in less than a minute the anæsthetic sleep was produced anew. M. Michel profited by it in the excision of the flaps of the mucous surface. The Amylene was removed, and at this time the anæsthesia continued at least a minute and a half. The respiration then became accelerated anew, and the child began to stir. The Amylene was applied the third time, and insensibility was speedily produced, the little patient becoming motionless. Three pins were applied which served to reunite the mucous surface to the skin. Sleep continued more than two minutes. A fourth application of the anæsthetic was made, in order to facilitate the dressing, which produced a more prolonged sleep than the preceding; the child then became half awake, and remained for two or three minutes without complaint, looking around himself, almost immovable, without making any opposition to the dressing that was being finished. He soon came completely to himself, struggled and cried as before the operation. This agitation continued about a quarter of an hour, the cries being evidently occasioned by the pain. The little patient became calm at last, and rested tranquilly in his bed, without the occurrence of any consecutive effect from the action of the Amylene.

The operation continued from eight to nine minutes, thirty-five grammes being employed. The application was suspended as soon as the sleep was produced, and the anæsthesia superinduced by the four separate administrations, continued in all about eight minutes. The laxity of the limbs was never complete; but a sufficient immovability was obtained without rigidity of the muscles; and the sensibility was completely extinguished. There was no nausea; the child had taken a soup of milk two hours before the operation. The eyes remained half closed, the globe of the eye being lightly convulsed upward. The respiration was very much accelerated, eighty-four in a minute being the maxi-

mum, and there was panting at the moment when sensibility began to return.

As a prolonged insensibility was not required, the Amylene was immediately withdrawn so soon as the child slept; and the renewal was made at the first signs of sensibility. The duration of the anæsthesia each time, varied from one to two minutes; at the third and fourth applications, it continued longer than at the first and second, and it would have been easy to produce a still longer and more profound sleep, by repeating the Amylenizations. But the object sought was exactly obtained, which was to obtain a sufficient anæstheticism for an operation of short continuance and it was unnecessary to go further.

CASE VII.—*Child four years old; Granular Ophthalmia; Amylenization continuing for four minutes; Cauterization.*—Catherine B., *æt* four, enfeebled by chronic diarrhœa, was attacked with granular ophthalmia. The eye-lids were tumefied, the palpebral conjunctiva was suppurative and photophobia was extreme. On the 16th of March it was decided to cauterize the granulations.

To Amylenize the patient I employed a cornet of waxed cloth, with a sponge in the base. The cornet was of little depth that the sponge might be in close proximity to the entrance of the respiratory passages, the vacant space engaging the mouth and nostrils, the apex being pierced with holes to admit the entrance of the air. The sponge was charged, and the cornet applied, the child weeping and resisting, but without showing any strong repugnance to the vapor. In one minute the cries ceased, the child becoming insensible and immovable without muscular laxity. The cornet was renewed, and the eye-lids were examined, but almost immediately signs of sensibility appeared. A new charge of the sponge and re-application made with insensibility in less than a minute, when both of the right eye-lids were cauterized. The apparatus being removed, the child again revived. Amylene a third time—rapid insensibility—other eye cauterized—sensibility began to return in half a minute, and there was a resumption of speech in one minute—intelligence complete in three minutes—the child crying out, and accepting at the same time an offered *bon bon* that it grasped strongly while continuing to cry—operation of four minutes continuance, during which anæsthesia was maintained by the consumption of twenty grammes of Amylene—with little economy, much less would have been sufficient—insensibility accompanied with almost complete immobility, and without muscular laxity. There were neither contractions nor fibrillary trembling—no nausea—no salivation—respiration accelerated—pulse frequent—the child panting, when sensibility began to appear.

Case VIII.—*Child two years and a half old; Severe Contusion of the Thigh; Amylenization of five minutes duration; Diagnosis.*—Marie B., age as above, of vigorous and strong constitution, fell from her bed on the 16th of March, and was carried on the next day to the hospital. The child suffered severe pains in the right thigh which was much swollen, and a fracture was suspected. The examination of the limb caused the child to scream loudly with pain. Amylenization practised on the 18th of March, with a view to a precise diagnosis—Professor Michel assisting in the operation. Amylene was poured on the sponge which was enclosed in a cornet of waxed cloth, and applied to the mouth and nostrils—child cried, but without showing any repugnance to Amylene—was preöccupied with the dread of having the injured thigh touched—coughed once—cries ceased in about a minute—insensibility in two minutes—eyes turned upwards and inwards—muscular laxity incomplete—no rigidity of the limbs—accelerated respiration. The Amylene was then withdrawn, and in half a minute the sensibility tended to a return—Amylene renewed—anæsthesia almost immediately reäppearing; and this time the beginning of muscular laxity of the limbs manifested itself. The sleep lasted about five minutes. The absense of fracture was ascertained. In one minute after Amylenization, the patient began to cry, and in two minutes full consciousness was reïnstated, the child accepting *goodies* which were offered it, though continuing a cry which it soon left off. The amount of the drug employed was fifteen grammes.

M. Rigaud has produced complete anæsthesia in three children of the ages of twelve and fourteen years.

Case IX.—Adèle W., *æt.* twelve—case of club-foot—anæsthesia with Amylene in the sponge and cornet as before—full effect in three minutes—tendo-Achillis was divided—consciousness returned with the withdrawal of Amylene—reäpplied—a little muscular rigidity became visible, which soon gave place to a complete laxity of the muscular system—Amylene continued to the end of the operation, involving the section of the plantar aponeurosis, and the adductor of the great toe—total period of anæsthesia eight minutes—continuance of anæsthesia after the withdrawal of the Amylene, one minute. The patient returned to herself without being able to recount what had happened. She was perfectly reïnstated at the end of two minutes, and experienced the necessary sensation of pain resulting from the operation—no nausea—patient took milk in an hour after the operation.

Case X.—Marie L., *æt.* fourteen—whitlow—agreed to be Amylenized without hesitation—at the end of three minutes a little muscular rigidity observed—eyes convulsed—anæsthesia complete almost imme-

diately—sleep tranquil—the whitlow incised—the drug withdrawn—return of consciousness prompt—related her dreams, and knew not that the incision had been made; and it was only some minutes after her awaking, that she felt the pain of the incised finger return. There were in this case a little cephalalgia and nausea; but these symptoms soon disappeared.

RECAPITULATION AND CONCLUSIONS.

These several cases leave no doubt whatever in relation to the efficacy of Amylene as an anæsthetic in cases of children. We shall recapitulate, in a few words, the advantages of Amylenization it this behalf: Children inhale Amylene without repugnance, this substance neither irritating nor fatiguing the respiratory passages. No apparatus is necessary to anæstheticize the little patient, the sponge and the cornet of waxed cloth being all that is required.

The anæsthetic action is rapid, rarely exceeding one or two minutes.

The insensibility is complete without the necessity of producing laxity of the muscular system. It is much easier with Amylene to keep within the degree of effect which is intended to be produced than with chloroform—much easier to keep up a superficial and transient effect proportioned to the object sought to be attained. We here insist on this important difference in the anæsthesia of children ; with chloroform we often realize its effects more strongly than we desire, bringing on a profound somnolescence, and a complete resolution of muscular power, whilst with Amylene we are very nearly certain not to produce these results when we do not seek to produce them by a persistent inhalation.

If we have need of producing a profound anæsthesia accompanied with a resolution of muscular power, these results can be produced also by Amylene, by sufficiently prolonging its action.

M. *le docteur* Debout maintained a patient in a state of insensibility by Amylene for three quarters of an hour; but here lies another important difference between this substance and chloroform. No sooner has the inhalation of Amylene been suspended, than the effects diminish rapidly, its absolute insolubility and excessive volatility result in the rapid elimination of this substance, and the prompt disappearance of the symptoms. But with chloroform, on the contrary, the volatility is much less, the effects are more prolonged and sometimes they become more grave after the inhalations have ceased. We see sometimes in children the sleep uselessly prolonged from twenty minutes to half an hour after the operation. Anæsthesia is a diminution of life, a sleep towards death, and it is important that it should not be prolonged an

instant beyond the period which is absolutely necessary, such prolongation being always perilous.

The awaking is prompt and rapid with Amylene. The consequences of a short anæsthesia are seen only for five or six minutes, and two or three minutes are sufficient to restore the child to the plenitude of his faculties. This return is a little retarded when the anæsthesia has been protracted. Up to the present there has been no untoward result in the use of Amylene. The elimination is rapid, and the traces of Amylene are promptly effaced. Every thing proves that a prolonged Amylenization does not produce any secondary lesions; even with chloroform the secondary phenomena are but little recognizable. In an hour after a profound anæsthesia, I have often seen the little patients resume their sports, or quietly take their repast.

Another fact which appears to give a manifest advantage to Amylene, is the absence or great rarity of nausea and vomiting, an advantage which has been always observed in its use. I have never seen these symptoms present, though the little patients were anæstheticized only two or three hours after eating. M. Giraldès has seen neither nausea nor vomiting in any of the twenty-five cases he has collected, even when the children had eaten but a little time before Amylenization. This is a characteristic advantage, and is of high practical importance. But nausea and vomiting, though rare, may nevertheless occur. MM. Rigaud and Schützenberger have seen nausea occur; and M. Debout has also shown that it may attend the use of Amylene.

Under chloroform, on the contrary, nausea and vomiting are amongst the very ordinary symptoms. In the chloroformization of a child which is not absolutely fasting, these symptoms are great inconveniences. Two or three hours after eating, I have seen vomitings occur, the nausea commencing with the inception of anæsthesia, or, indeed, at the moment when the stupor begins to diminish. The vomited matters come up and are drivelled from the buccal cavity while the child is unconscious. This spectacle has in it something painful and alarming. Though no accident be produced, it is, nevertheless, natural that we should fear that the vomited matters might find their way into the bronchia. I fell into the invariable rule of subjecting children to a fast of four hours, at least, before applying chloroform. Under this point of view, Amylene possesses an incontestible advantage over chloroform. The former is less dangerous, and it permits a recourse to anæsthesia in a much less time after eating.

[Here Professor Tourdes quotes a long extract from the memoir of M. Debout, on the action of Amylene. The whole article of M. Debout

we have already translated and published in the New Orleans Medical and Surgical Journal—*Trans.*]

The innocuity of Amylene is theoretically indicated by the volatility and insolubility of this substance; and the truth of the theory is physiologically demonstrated by experiments on animals. We have seen rabbits succumb under the action of chloroform and ether, under circumstances in which they resisted Amylene. The superiority of Amylene over ether is placed beyond all doubt by M. Debout. He has shown that when two birds are placed in two atmospheres, each of the cubic extent of two litres, and ether to the amount of one gramme and thirty-five centigrammes is poured into the one, and Amylene to the same amount is poured into the other, at the expiration of one minute the one of the birds will succumb, and the other will revive, affording a new proof that Amylene is less noxious than ether. The fact is explained by the insolubility of the Amylene in water, and consequently its insolubility in the blood.

The cases in which it has been applied in human subjects are not yet sufficiently numerous to admit of practically determining the superiority of Amylene in regard to innocuity; but the analysis of symptoms, in connection with what is already known, is in accordance with the conclusions deduced from experiments on animals. We must, however, guard against reposing on a false security. Anæsthesia is always a peril, with whatever agent it may be brought about. Without speaking of unforeseen syncopes, which seem to set the prudence of operators at defiance, the lightest cause which may impede respiration may suddenly occasion death. We can bear witness to this from what we have observed on animals.

From the whole of these considerations, we have no hesitation in the conclusion that Amylene will be made to render important services in the treatment of diseases of children. Its general characteristics are facility of application, certitude of effect, innocuity in result. To this we may add the rarity of nausea and vomiting, the possibility of producing, at will, an anæstheticism, light or profound, transient or durable, and with or without the resolution of the muscular system, and a rapid resuscitation without consecutive untoward symptoms.

If we consider Amylene and chloroform relatively in respect to the indications for their use, we must conclude that in the cases in which it is desirable to produce an anæsthesia of short duration, as in painful examinations, with a view to diagnosis, or in rapid operations, Amylene is to be preferred; but that we should leave to the domain of chloroform the profound anæsthesias necessary in great operations, and in which

the surgeon is not permitted to preöccupy his mind with the apprehension of a too sudden awaking on the part of his patient. But we ought not to speak in advance of the actual results of experience. The decisive fact in question is undisputed—the innocuity of Amylene; and if, in this point of view, observation confirms the first givings-out of science, there can be no doubt that Amylene will occupy an important place amongst the substances which now secure the great blessing of the annihilation of pain.

Art. V.—*Chemical Researches on Amylene.* By M. Duroy. A memoir communicated to "*l'Académie Impériale de Médecine,*" of Paris. Translated from *l'Union Médicale*, of April 7 and 9, 1857, by M. Morton Dowler, M. D., New Orleans.

[In rendering this memoir into English, we have been compelled to abridge and condense the same to a considerable extent. M. Duroy after considerable preliminary discussion, asserts what will be found to be subsequently proven by him, that in the amylenizations which have been practised in London and Paris, nothing like pure amylene has been used—the amylenes of MM. Hepp, Ménier, Snow, etc., not being at all identical with the C^{10} H^{10} of M. Balard, the discoverer of amylene. The following is the principal matter of the memoir. It will be seen that the production of the amylene of Balard is, in the midst of present resources, one of the most tedious, delicate and difficult operations known to chemistry, and withal expensive.—*Translator*.]

PROPERTIES OF POTATO-OIL.

Potato-oil, which also bears the synonymes of *amylic alcohol*, the *bihydrate of amylene*, and the *hydrate of the oxyde of amylene*, (*fusel oel*, of the Germans,) in the form in which we obtain it from the potato distilleries always contains ordinary oil—to such extent, indeed, that it is not rare to find it in the proportion of fifty per cent. The potato-oil is, moreover, most generally colored, and presents a burning, penetrating and disagreeable odor which sensibly diminishes during rectification. It is of much importance to purify the potato-oil, which is used for the preparation of amylene; for without this precaution the chloride of zinc, acting on the ordinary alcohol and carbonizing the coloring matter, develops an empyreumatic product which ought to be avoided from the beginning, otherwise thus taking birth, and accompanying the amylene, it cannot be separated from it subsequently.

M. Hepp has recommended, following the process of M. Cahours, to agitate the potato-oil with water in order to remove the alcohol; but if this process has succeeded in the hands of our learned *confrère*, it must be owing to the fact of his being in possession of almost pure amylic alcohols; for, if like ourself, he had had the misfortune to get hold of none but highly alcoholic potato-oils, he would, like us, have found that the washings, while carrying away the ordinary alcohol, would likewise carry away the fourth, the half and even the whole of the potato-oil. The water separates the alcohol, it is true, but the latter acquires immediately a great solvent power over the potato-oil. Before submitting it to washing, we should, in all cases, look to the quality of the the amylic alcohol, and in view to this we here submit the parallel of character which we have observed between the pure and impure amylic alcohols:

QUALITIES OF PURE AMYLIC ALCOHOL.

Potato oil is a colorless, limpid liquid, of an oily appearance, of a strong odor; agreeable in its first impression, but afterwards nauseabund in a high degree. When its vapor is respired, asthmatic symptoms occur, which produce cough, and even vomitings. Its taste is very acid. It is inflammable, and burns with a whitish blue flame. It boils at 132°, and its sp. gr. is 0.812.

At 19° or 20° it solidifies, forming crystaline scales. It stains paper, the stains disappearing some time after. It is sparingly soluble in water, to which it imparts its odor. It mixes in all proportions with alcohol, and ether and the fatty and the essential oils, etc. (Liebig).

We may add that in agitating this pure oil with water in a wide tube, it arises again to the top, and occupies the same space in the tube that it occupied at first. In the experiment, the potato oil ought to retain its transparency, and the water itself ought to remain limpid. When an iron blade, moistened with it, is brought near the flame of a bougie, the metal, receiving a

QUALITIES OF IMPURE AMYLIC ALCOHOL.

The crude potato oil is more fluid and less oily; its order is more alcoholic and stronger, being ordinarily colored, and more inflammable than the pure oil. When it contains only one-tenth of ordinary alcohol, and an iron plate is moistened with it, it burns when brought into contact with the flame of a bougie. The oil of potato is very combustible; but it will not take fire under such condition, from the fact that its volatilization and combustion demand a higher degree of heat than can be imparted to it in *an instant* on the conducting metal.

Pouring a little of this product in a glass tube containing water, and reversing the tube, after having corked it, the crude oil changes the water, in traversing it becomes opalescent, and communicates to it a milky appearance; and if the experiment be conducted in a graduated tube, and the mixture be strongly agitated, after repose it will be observed that the superincumbent oil is diminished in quantity, correspondingly with the amount of alcohol which has been dissolved.

part of the heat, leaves no trace of the amylic alcohol. In order to inflame, under these circumstances, the potato oil must be at 39° to 40° of the aërometer. This test is of value only in the absence of ordinary alcohol.

When it contains alcohol, the latter is naturally accompanied with water; but the mixture is rapidly warmed, when a salt which has a strong attraction for water is introduced, as the dry chlorides of zinc and calcium.

PURIFICATION OF POTATO OIL.

We must look to the method which possesses the greatest efficacy, and which is at the same-time the least expensive. After various trials, the method of purification which has been attended with the best success in our hands, is the following: I pour the amylic alcohol in the cucurbit of an alembic, and adding four or five times its volume of water, I agitate the mixture, and luting the apparatus, I distill with a very moderate heat. At first, the resulting product is a limpid and homogeneous product, odor strongly alcoholic, and miscible with water without turbidity. Up to this the product appears to be ordinary alcohol, but soon the distillation slackens, and then the first product must be removed, and the recipient must be changed. At this second step, the distilled liquor is milky, which is a mixture of ordinary alcohol, amylic alcohol, and water; then comes the amylic alcohol almost pure, accompanied with water only; and finally, the distillation is to be arrested, when it is found that nothing passes over but an aqueous product. The second recipient contains the amylic alcohol, which is to be separated by means of a syphon. In this state it still contains a little ordinary alcohol, so great is the affinity of the two liquids for each other. The product may now be washed without much loss; but this washing not having all the desired efficacy, unless frequently repeated, I have recourse to a second means, which has been perfectly successful, not with a view of removing the water as has been recommended, but with a view of radically separating the alcohol. I rectify on a great quantity of dry chloride of calcium, this salt having the effect of dehydrating and concentrating ordinary alcohol, and by these means giving it the property of volatilizing at a low temperature, and by this means also the alcohol passes immediately by distillation. After this, there is a marked arrest of distillation, though the heat continue the same, and the recipient is to be replaced by another vessel destined to receive the potato oil, which, by increasing the heat, is now wholly distilled over in the desired purity.

PREPARATION OF AMYLENE.

Whilst physiologists are conducting experiments with a view of studying the effects of amylene on man and animals, an uncertainty rests on

the whole, from the fact that all the products employed under the name of amylene, are only multiple compounds of several carburets, and I shall hereafter show that these amylenes contain besides, sometimes ether, but up to the present time, *always amylic alcohol*. Now the main question is to determine, if we can, as an industrial process, succeed in the manufacture of amylene properly so called. If the difficulty of obtaining pure amylene, should so augment the price as to render its surgical employment impracticable, and if, at the same time, it is, nevertheless, found that a mixture of amylene, paramylene, metamylene, etc., possesses a real value, useful properties, and, in fine, is worthy of being adopted as an anæsthetic, we ought, at once, to determine the precise character of the article to be used—the quantity of absolute amylene which this compound of the hydro-carburets ought to contain. Thus we ought to determine the highest boiling point, and never to use a product leaving a residuum, on distillation, beyond this *maximum* of heat. We should seek the means of recognizing its bad qualities, and of showing its adulterations. But most specially should pharmaceutists and chemists bestir themselves with a view of furnishing a good preparation at the lowest possible price.

Apparatus.—The material composing the apparatus is a subject worthy of consideration. Glass retorts are generally used when active reagents are required; and in this view the chloride of zinc would appear to demand their employment, there being no chemical action thereby produced on the glass, and its transparency permitting ready observation. Amylene, up to the present time, has generally been prepared by means of glass vessels. I myself used them in my first trials, but I soon realized their insufficiency and inconvenience. They are not adapted to an extensive production of amylene; they require a great deal of combustible material, and from their fragility, they expose the manipulator to the occurrence of serious accidents. A distillation from glass is tedious and difficult, even when we take the greatest care to cover the arch of the retort in the most careful manner in the sand-bath, in order to retain the heat. If amylene were produced at a low temperature, and if it passed *alone* into the receiver in distillation, these inconveniencies would not exist; but as it comes over at first with its congeners, paramylene and metamylene, these heavy vapors when at the summit of the retort, give out their latent heat, and they become condensed, and, for the most part, descend again. Meanwhile the chloride of zinc becomes concentrated, abandons a part of its water, and becomes more and more active, and it then carbonizes a part of the amylic alcohol and of the hydro-carburets, and at the same time this radical alteration imparts

to the amylene a strong empyreumatic odor. I therefore now make use of a copper alembic, this metal not being acted on by the chloride of zinc. In this apparatus, which is indeed required in every laboratory, the process is conducted, at a less expense, and by its use we make a considerable step towards the reduction of the price of amylene.

PRELIMINARY EXPERIMENTS.

The action of the Chloride of Zinc, at different degrees of temperature, on Amylic Alcohol.—I. When potato-oil is agitated with the chloride of zinc coarsely broken, the mixture becomes a little heated, and on reposing, the saturated oil being separated from the excess of the salt, and mixed with a certain proportion of water, in order to remove the chloride, there will be found after the evaporation of this water, a residuum of the chloride of zinc, of one tenth of the weight of the oil which has been withdrawn. Thus a gramme of the concrete chloride of zinc dissolves in ten grammes of the potato-oil.

II.—A particle of the oil which has remained on a particle of the chloride of zinc, is colored in a few minutes, and before the next day a great part of the oil is carbonized; and, therefore, in the concrete and *cold* state, this salt acts strongly on the potato-oil.

III.—When the oil is impregnated with only little fragments of the dry chloride of zinc, and left to reäct for an hour, and if then a little water be added, the latter uniting with the chloride will immediately produce sufficient heat to disengage light bubbles, the odor of which seems to approach very nearly to that of amylene.

IV.—An oily solution, saturated with the chloride of zinc, as in the first experiment, does not become carbonized. If we shall have made such solution several days previously, the elements of the oil will now be found to have become slowly modified and disposed to give out a greater quantity of amylene by distillation. I am informed that M. Hepp has also observed the same fact.

V.—After many days preparation, I have made the distillation without adding anything to the above saturated solution. I have obtained a product which was not pure amylic alcohol, nor was it amylene, or at least there was but very little of the latter present.

VI.—Seeing that the quantity of the chloride of zinc dissolved by the amylic alcohol was not sufficient to transform it into the hydrocarburets, I introduced into the cucurbit of a little copper alembic, placed in a sand-bath, dry chloride of zinc to the amount of about the one-sixth the weight of the amylic alcohol employed. I poured on this chloride a sufficient quantity of amylic alcohol to cover it, the alcohol having previously been saturated with the chloride, and the head of the

alembic being well luted and connected by means of a caoutchouc to another tube descending from a glass reservoir with a stop-cock, and which contained the remainder of the amylic alcohol. On the other side, I put a receiver of the same dimensions with the reservoir and graduated in the same manner. Moreover, certain special precautions were observed, and every thing was disposed as in M. Scottman's apparatus for the production of ether. The refrigerator was filled with ice, and the distillation was carried on by means of a slow fire.

The operation soon began, and proportionally as the liquid ascended into the receiver, I caused the fluid in the reservoir to descend into the cucurbits. The distillation went on with great rapidity, and I suspended it in a short time after exhausting the reservoir. The product separated from the water and rectified in a glass retort by means of a water-bath, was by no means pure amylene; but it was abundant. It possessed a somewhat stronger odor than that which I had procured by means of the concentrated chloride. It is very nearly identical with the amylene of Dr. Snow. In varying the proportions and the state of concentration of the chloride, I hoped that this apparatus would produce good results.

VII.—In this experiment I have followed the process of M. Hepp, which consists in mixing in a retort equal parts of amylic alcohol and the chloride of zinc at 70 degrees of the aërometer of Baumé, agitating the distilled product with an equal volume of sulphuric acid, separating the acid, and then rectifying by means of the water-bath. The boiling of this amylene commenced at + 31° and was carried to + 64°.

VIII.—The experiment similar to the preceding, with the exclusion of sulphuric acid: The product being simply rectified by means of the water-bath at the temperature of + 60°, and agitated for a long time with one-eighth of its weight of dry chloride of zinc, and again distilled, an amylene resulted, the ebullition of which commenced at + 30°, and required at the end + 50°. The chloride of zinc is to be preferred, because it does not develop, like sulphuric acid, a disagreeable odor.

IX.—Dissolving in water the chloride of zinc, still impregnated with the amylene of the eighth experiment, an oily liquor came to the surface of this solution. This oil, heated in a water-bath to 100° for an hour, was not volatilized. Testing it with potash, valerianic acid was produced. *Thus amylene, rectified by the water-bath below* 60°, *retains a great deal of amylic alcohol;* but this experiment shows that the dry chloride of zinc has the property of removing this alcohol, without affecting the amylene.

These experiments go to show the difficulty, not to say impossibility

of discovering a facile and inexpensive method of obtaining pure amylene. Let us examine the qualities of the amylenes in use: I have taken four different preparations, namely: 1, that of Dr. Snow (A); 2, that of M. Ménier (B); 3, that which I have prepared according to the process of M. Hepp (C); 4, the amylene obtained in the sixth experiment (D). The fixity of the boiling point, being one of the principal means of defining a liquid compound, I distilled in succession these four amylenes in a small retort provided with a thermometer. The following was the result:

Boiling of product	A	began at	+ 30°	and closed at	+ 60°
"	B	"	+ 29°	"	+ 75°
"	C	"	+ 30°	"	+ 62°
"	D	"	+ 31°	"	+ 57°

This variation in the degrees necessary to the ebullition of these products, indicates not only the presence of carburets more volatile than amylene; but, on the contrary, also the presence of bodies less volatile.

Action of Potassium on impure Amylene.—The amylenes having a badly defined character may be nothing other than a mixture of the different carburets, and of amylene, properly so called. In such case potassium would have no more action on them than it would have on the oil of naphtha, in which it is placed for preservation. But such is not found to be their condition, the potassium oxydating in these amylenes, and giving out hydrogen gas in abundance. In order to determine the quantity given out, I have taken a little dry flask to which I adjusted a curved tube, passing it into a hydro-pneumatic receiver with a graduated scale, and I have placed successively in this flask, an equal weight of the aforesaid amylenes, with a large excess ef brilliant potassium cut into small pieces. The disengagement of gas was rapid in each experiment:

3 grm.	of amylene	A,	in contact with potassium,	gave out	64	cubic centimetres	of hyd. gas.
3 grm.	"	B,	"	"	91	"	"
3 grm.	"	C,	"	"	75	"	"
3 grm.	"	D,	"	"	[illegible]	"	"

The action of Potash on impure Amylene.—The oxydation of potassium, and the consequent disengagement of hydrogen, would indicate the presence of potato-oil, and perhaps a little ether derived from the alcoholic oil; but it is especially probable that this reäction takes place between the metal and the elements of the amylic alcohol, in which is found two equivalents of water. Moreover, there is potato-oil found in it by agitating with portions of potash, which is slightly humid, and there is here soon developed the odor of valerianic acid, rendered still more sensible by the addition of sulphuric acid.

PURIFICATION OF AMYLENE.

Knowing that the amylenes in actual use, are but mixtures of amylene, the isomeric carburets and amylic alcohol, and having proven by experiment the difficulties that are to be encountered in obtaining the absolute amylene (C^{10} H^{10}) of M. Balard, and desiring to obtain the *type of this product*, I continued my experiments on rectification. Already it had occurred to me that at a very low temperature, with the water—both amylic alcohol obstinately passes over with the amylene, but that happily this alcohol can be separated by the chloride of zinc. I treated at several times impure amylene with this salt in its dry state, re-distilling many times, and I have thus obtained a liquid which is neutral in the presence of potassium. But by the test of the thermometer, I have still realized the inconstancy of the boiling point. These repeated rectifications had caused the loss of the very volatile elements which boil between + 29° and + 34°; and on the other hand the extreme of + 60° was reduced to + 45°. I then obtained a fluid which boiled between 34° and 45°. I thereupon, for the last time, put the fluid in the retort, and I collected *none save the part which distilled fixed at* + 35°. This time I procured the pure amylene of M. Balard—but at what price! I obtained forty grammes of amylene, (ten drachms) from five litres (tent pints) of amylic alcohol! We must surely hope better things on the score of economy.

To sum up the essential character of amylene is: 1, to boil at + 35° fixed; 2, to possess no action on potassium, and to preserve this metal like the oil of naphtha; 3, to receive no coloring from the presence of caustic potash, *even when prolonged;* 4, to give birth to no valerianic acid under the action of the hydrate of potash.

ART. VI.—*Embalment. Burial.*

WEST FELICIANA, LA., March 28th, 1857.

DR. DOWLER:—*Dear Sir:*—The circumstance of the body of Dr. Kane having been "embalmed after the method of Gannal," has raised the question in my mind as to what that method is? I am aware that it purports to be, the injection into the arteries of the acetate of alumine, formed by mixing solutions of the sulphate of alumina and potassa, and the acetate of lead, and throwing down the insoluble sulphate of lead, and forming the acetate of alumine, yet he admits that this preparation, in the course of time, causes the subject to take on "all the exterior aspect of the negro," owing to the lead still held in solution combining with the hydro-sulphuric acid disengaged by the decomposition of the body; in fact, this process seems only intended for the preservation of bodies for dissection, as he acknowledges in more than one place, that he retains the secret of embalming for his own special use and benefit. As my copy of Gannal's work on the subject dates back to the year 1840, and only gives (or pretends to give) his researches up to 1838, and that in a very (to me) obscure

manner, my information may be old; and for this reason, I am induced to ask whether or not his researches have been continued, according to promise, and if so, what is the result? In fine, what is the method of Gannal? and does any one really possess a knowledge of a method of preserving the bodies of the dead for any length of time in any climate, except those known to possess the property independently of any artificial process whatever? and if so, what is that method? An answer to these queries through the columns of the N. Orleans Med. and Surg. Journal would be particularly gratifying to me, and, no doubt, interesting to many of your readers. Respectfully yours, etc.,

W. T. COX, M. D.

——"Embalm me,
Then lay me forth."—SHAKS. Henry VIII.

——"Thy virtues are
The spices that embalm thee; thou art far
More richly laid, and shalt more long remain
Still mummified within the hearts of men
Than if to lift thee in the rolls of fame
Each marble spoke thy shape, all brass thy name."—HALL.

THE *Gazette Médicale de Paris*, No. 46, *anno* 1851, contains a report on the substances used in embalming the dead. This report is an official one made by a commission appointed by the Academy of Medicine, and is an answer to the request made by the Minister of Agriculture and Commerce; the latter having consulted the academy agreeably to the advice of the council of health, in regard to the interdiction of embalming with poisonous substances. The commission consisting of MM. Orfila, Bussy, Chevallier, Poiseuille, and the reporter, M. Caventou. The result of their deliberations may be summed up in the following condensed translation: The recognized agents, adapted to the preservation of animal bodies, as proven by numerous experiments, are partly derived from the mineral kingdom; such are certain alkaline and earthy salts, as the chlorides of potassium or sodium, the sulphate of soda, the nitrate of potass, the aluminous salts, etc., but all such are quite limited in their preservative powers, unless associated with arsenic. The use of the metalic salts, such as those of zinc, mercury, lead, copper or iron, is, to a certain extent, poisonous. Arsenical preparations have been already proscribed by a law passed October 29, 1846, since which, corrosive sublimate has been much used; also the acetate of lead and the salts of copper. The dangers incidental to the employment of these poisons, ought, as the commission think, to exclude them from use in embalming the dead.

M. Bussy thought the report too absolute in maintaining that no substance devoid of arsenic can be relied on. M. Gannal affirmed the contrary, and M. Chevallier, who had examined a great number of preparations made and intended for embalming the dead, found that they contained no arsenic. M. Bussy thought that the salts of alumina which are convenient and useful for embalment should not be interdicted.

M. Caventou denied the efficacy of aluminous salts in embalming, unless the body be buried in the earth. M. Bussy, however, said that he would not oppose the adoption of the report.

M. Orfila said he had examined M. Gannal's preservative preparations, which he found not *lightly* but *very strongly charged* with arsenic. After having examined M. Gannal's first preparation for embalming, M. G. directed the commission to a second kind which contained no arsenic, but which did not preserve the body from running into horrible rottenness: "*Les cadavres injectés avec ce liquide furent trouvés, au bout de quelque temps, horriblement pourris.*" M. Orfila denied the efficacy of aluminous salts for the purpose of embalming the dead.

The Academy adopted the conclusions of the report, (Nov. 11, 1851.)

Some time subsequently to this report of the Academy, the following statement concerning M. Gannal's reputed discovery appeared in the public journals :

" *Verification of an Interesting Discovery.*—Dr. Quesneville, the editor of the *Revue Scientifique* of Paris, in a late number of that journal, gives an account of some experiments, at which he was present, to test the merits of a new discovery in the art of embalming. 'Agreeably to the invitation,' he says, 'which was addressed to us in common with a large number of physicians and journalists, we were present at the exhumation of a body that had been embalmed after the method of Gannal. This took place in the cemetery of Père La Chaise, and we were attracted by no ordinary feeling of mere curiosity. A recent report of the Academy of Medicine had called in question the reality of this discovery, supposed indisputably established. A public defiance had been thus given to this celebrated embalmer, who was not slow in taking up the glove thus thrown to him. We found on the spot, a large concourse of curious spectators; but the family would not consent to admit more than six physicians out of more than 150, who came to ascertain the result of this curious exhumation. The body in question, embalmed in 1844, was found in a perfect state of preservation. Thus have failed, therefore, these inexplicable efforts of this learned body, after so short a time, to destroy the reputation of a discovery extolled by their own published testimony.' "

Embalming, which is very rarely practised in the United States, is deemed of great concernment in some European countries.

" *Embalming in France.*—It is a singular fact," says the London *Lancet*, " but nevertheless true, that in France, at the present time, (1844) the higher and richer classes are nearly as much in the habit of embalming their departed relations as were the Egyptians, or the in-

habitants of the Canary Islands, in the days of old. The principal difference, however, between the men of former times and our continental neighbors is, that the former embalmed their dead in such a manner as to render them nearly imperishable, as our museums can testify, under the impression that the soul remained near the body as long as it retained its terestrial form; whilst the latter, who are not much troubled with superstition, as every one knows, are content to impart to their dead a temporary immunity from decay."

G. R. Gliddon, Esq., formerly U.S. Consul at Cairo, an able Egyptologist, long a resident in Egypt, having left me for perusal, a MS. of his on Mummies, I have extracted from it the following abridged statements of facts and opinions: "The soil of Egypt is so profoundly drenched by inundation, that from the earliest to the latest times, no cemeteries were constructed on the alluvial plain. The dead were interred upon the *sand* at a level high above the water-line of the river's utmost rise, where they rapidly *dried*. The towns were situated some miles off from the *Necropoles*. The dead were carried to the desert, which in some cases lay ten to fifteen miles off, and which was used as the primitive burial places before the art of mummification was introduced—before pyramids and catacombs were constructed.

"In summer the plague does not occur along the Nile—it is a winter and spring disease that dies invariably in *June*. But the peculiar atmospheric phenomena of Egypt are then, such, that as the heat is greatest so the N. W. or Etesian blows highest. In fact, what with the N. W. wind blowing up the river eight months of the year, and the S. E. blowing four months down, the valley of the Nile is a perfect *air funnel* through which for six months out of the twelve the wind blows a gale upwards or downwards.

"We return to the earliest days of Nilotic ante-monumental history when the primitive wandering shepherd transformed by time and necessity into a stationary farmer, had witnessed the drying effects of the sands of the desert, impregnated with *Natron*, which preserved the dead from putrefaction; he was led to use this and *baking* or *desiccation*, bitumen, bandages, clothes, etc., and to excavate rocks and make tombs for his dead.

"Mummification ceased about A. D. 640. The Necropoles of Memphis covers about twenty-two miles from N. to S. and about a mile in breadth from E. to W., being the most ancient extant.

"The largest Necropoles of the Nile are to be found on the *Western* side along the Lybian chain of limestone hills, in the neighborhood of the larger cities. Sauàra, the nearest to Memphis, is the largest.

From the remote age of *Menes*, (whose reign cannot be brought down later than 3600 B. C., probably 5000 B. C.,) the city of Memphis continued to pour out her dead upon this vast emporium of bodies, down to from 500 to 800 A. D.

"Great inconvenience is experienced, now-adays, in Egypt, owing to the heat and rapid putrefaction of *corpses* which are in consequence hurried to the grave with a celerity quite appalling to our European ideas. In the plague of 1835, I spoke with a Nubian servant who was apparently in good health about 12, M., and by 2 o'clock his bier passed my house with the lugubrious chant announcing his body's last journey to the dust. Cases such as these are familiar to all in oriental countries. At Cairo I have frequently had occasion to pay the last obsequies to friends whose relations wished the *corpse* to be sent to the Protestant burial ground at Alexandria, to England, and even to America, and with the utmost expedition, and at lavish expense, in copper or leaden coffins, it was scarcely possible to place the corpse into them quickly enough to escape inconveniences: for without *ice* it is impossible.

"The invention of mummification obviated all difficulties: the bodies went instantly to the embalmers as soon as the breath had abandoned them; every provincial temple had its complete establishment for converting them into mummies at any expense the family chose, and after about seventy days the corpses were ready to be conveyed any distance to the tombs."

Although the period of seventy days here given agrees with classical history, (Herodotus and others) yet the Pentateuchal history proves that Jacob's body which was embalmed in Egypt, agreeably to the method then in use in that country, required but forty days to "fulfil" the whole term "of those who are embalmed:" "And Joseph commanded his servants, the physicians, to embalm his father: and the physicians embalmed Israel. And *forty days* were fulfilled for him; for so are fulfilled the days of those which are embalmed."—*Gen. L.*, 2, 3.

Embalment among the Hebrews at a later æra is thus briefly indicated in sacred history: "And there came also Nicodemus (which at the first came to Jesus by night) and brought a mixture of myrrh and aloes, about an hundred pound weight. Then took they the body of Jesus, and wound it in linen clothes with the spices, as the manner of the Jews is to bury."—*St. John* xix, 39, 40.

Mr. Gliddon estimates that the Necropoles of Memphis and Thebes held half of the dead of ancient Egypt below the first cataract, and that in 3,000 years, during which mummification prevailed, the number of mummies amounted to four hundred and fifty or five hundred millions, "all being imperishable save by the hand of *man*."

"The average length of mummies, owing partly to the desiccation each body has undergone, which has contracted its true proportions, and partly to the fact that the ancient Egyptians were not a large race of men, may be roughly estimated at five and a half feet, when enveloped in their wrappers. The height of the reclining body and the breadth across the shoulders one and a half feet each.

"Extraordinary as my assertion may seem, the tombs of Egypt excavated in the rock, are numerous enough to hold all these mummies.

"In chronological duration, *mummification* antedates all human history, all monumental records, and following its phases down to the fifth century after our era, a period exceeding five thousand years!"

In a published work, (*Otia Ægyptiäca*) Mr. Gliddon gives the prices of Egyptian embalments: "Three classes of mummies; the first of which costs one thousand two hundred and fifty dollars, the second, three hundred dollars, and the third, or cheapest, twenty dollars; some having one thousand yards of *linen* weighing forty-six pounds, varying in texture from good calico to superfine cambric.

"The Egyptians were under our average size. The length of life in Egypt, even in days long before Abraham, being the same as our own, proved by innumerable sepulchral tablets, the reigns of kings, and the skulls of mummies."

The Pharaonic embalmers and their successors and imitators, down to M. Gannal, stand at an almost infinite distance below the late celebrated Italian, Segato, who possessed the art of fossilizing or petrifying the human body, not excepting its softest tissues, as the viscera, brain, etc. There is, as reliable travelers assert, a table in the museum of Florence, made in mosaic out of the human organs, solid like marble, the pieces of which were prepared by Segato. He carried his secret with him to the tomb.

The reader is referred to an article in this Journal, translated by Dr. M. M. Dowler from the *Jour. de Méd. de Bourdeaux*, (July, 1856) in which will be found Prof. Barbet's account of the method by which M. Lapeyrouse mineralizes animal matters by the earthy chlorides in twenty or thirty hours, so that animal substances will remain unchanged for "an unlimited time." This process, M. Lapeyrouse has patented. His experiments were made before the commission of the Council of Hygiene of Gironde, and should future experience and the test of time confirm all that Prof. Barbet of Bordeaux has said in its favor, the discovery will not only supersede all other methods of embalming the dead and of preparing anatomical subjects for dissection or preservation, but must prove highly advantageous in an industrial and economical point of view, and the more so, because it is not attended with much expense.

The value of this discovery, if discovery it be, cannot be definitely proven, except by the test of time. This test is in favor of the Egyptians as yet, seeing that without having used poisons dangerous to the living, they have preserved the dead for thousands of years. MM. Gannal, Lapeyrouse and others, must perfect their methods by excluding deadly poisons, and by awaiting the lapse of the forty centuries which Napoleon I saw perched upon the pyramids, looking down on the army at the battle of the pyramids!

Baron Larrey, the great surgeon, in his Military Memoirs of the campaigns in Egypt, gives a very interesting account of the Egyptian mode of embalming, yet he claims, nevertheless, for the moderns, the highest degree of success in this behalf, giving at the same time his mode, which consists chiefly in the application of corrosive sublimate to the fleshy parts, and then the plunging the whole body in a solution of this dangerous poison for ninety or a hundred days. "Thus," says he, "I preserved the body of Col. Morlan, who fell at the battle of Austerlitz; it is still perfect." But it is poisoned! To prepare, to dissect, or to keep such a subject is not devoid of danger. Should any evil minded person wish to poison his neighbor, a bit of the gallant colonel might be used. Besides, religion or affection, which gives rise to the embalment of the dead, must abhor the association of the idea of a beloved friend with a deadly poison!

The following paper from the *Charleston Medical Journal* translated from the *Moniteur des Hôpitaux*, presents a brief historical summary of the art of embalming:

We must go back to the earliest ages, in order to find the origin of preserving bodies, but for its history we must confine ourselves to those traditions which have been handed down to us in connection with the discovery of monuments which have escaped the destructive effects of time. Among the nations of Asia and Africa, where embalming appears to have been a general custom, those holding the first position were the Egyptians and the inhabitants of India. The Egyptians particularly, who left such numerous traces of ancient splendor, seemed to have wished to perpetuate themselves even in death, in strewing upon their soil mummies as indestructible as the superb monuments which concealed them.

Historians and antiquarians still conjecture on the motive which led these people to preserve the dead with so much care. Some attribute it to the belief that the soul, after escaping from the body, wandered about during 3000 years to reënter it, and that, therefore, the destruction of the former would compel it to pass into the body of an animal. The more rational believe the practice to have arisen in connection with the principles of hygiene, one of the branches of medicine that the Egyptians cultivated with so much success. For in these hot regions, only

receiving fertility from the overflowing of the Nile, the decomposition of bodies deposited in the earth would soon destroy the purity of the air, and spread among the population the seed of the most virulent disease. It is true that the places destined for burial were above the inundations of the river, but in these elevated places the putrefaction of bodies would have been even more fatal; for the winds which prevail in these countries in bringing putrid miasms from a distance would have transported also their disastrous effects. These considerations were too intimately connected with the interests of the public health to escape the enlightened spirit of those who had it under care; thus, Herodotus relates, that during a period of three thousand years Egypt was one of the healthiest countries in the world. Now, subject to the fatal yoke of Mahometanism, it no longer enjoys this immunity, but it has become the hot-bed of the plague. The various modes of embalming in Egypt might be reduced to the following operations:

1st. Remove from the body all fatty matters and mucous portions, by the prolonged action of soda.

2d. After having well washed the body, dry it in the air or in a stove.

3d. Preserve it by employing bitumen, balsams, resins and salts.

4th. Surrounding it with numerous strips of cloth, smeared with gum or bitumen.

The aromatics employed by the rich, were myrrh, aloes, cannella and cassia. For the inferior classes, cedar and the bitumen of Judea.

The duration of embalming varied from forty to seventy days, depending much on the drying of the bodies. When the operation was finished, they were enclosed in sarcophagi, and deposited in sepulchral chambers, inaccessible to moisture, the temperature being maintained at about 88 degrees, Fahr.

It is under these favorable conditions that a great number of mummies have been preserved through a long series of ages, and now supply us with sufficiently accurate knowledge of the art of embalming among the ancient Egyptians.

The Indian mummies, exhibited at the Garden of Plants, appear to have undergone an analogous preparation to those of Egypt. After embalming, the bodies were sewed up in the skin of goats, and deposited in catacombs.

In examining carefully the tissues of mummies, an analysis will detect nitrate or carbonate of potash, or sometimes sulphate and chloride of soda, or the iodides of lime and magnesia. During the infancy of the art, drying and aromatic substances were alone employed; later, saline matters entered among the ingredients. Ethiopians, inhabiting a country richer in gum than the rest of the globe, were accustomed to inclose their bodies in a molten mass of this transparent matter, while the Scythians and Persians covered them with an envelope of wax.

Pliny speaks of the antiseptic properties of honey, and it is related that Alexander the Great, after death, was rubbed with honey before burial.

Modern nations following the example of the ancient Egyptians have long practised evisceration in connection with the use of a number of solid and fluid substances to preserve bodies. Alcohol, essential oils,

and compound liniments are most conspicuous; balsamic and aromatic powders with saline substances are also used.

In the middle ages the art of embalming consisted in mixing aromatic substances with salt, with which the bodies were filled. Henry I of England was thus embalmed in 1135: long incisions were made in various parts of the body, filled with this composition, then sewed up, the body being then enveloped in a beef's skin and enclosed in a coffin. The employment of salt for the preservation of the bodies of kings, is well known in history, the sellers of salt claiming as their right to assist at the royal funerals, and bear the bodies of the kings.

In 1658, Louis C. Bils, a noble of Holland, well skilled in anatomy, announced that he had found a way of preserving bodies from putrefaction without evisceration, so that the form and flexibility of the extremities being retained they could be used for dissection. The announcement of this discovery on the part of the first noble who had given up himself to the pursuit of anatomy made a great sensation. At the height of his renown the States of Brabant bought from him five embalmed subjects for 22,000 florins. Zipœus, professor of anatomy at the University of Louvain, to whom they were given, was appointed to receive the secret; but a few weeks had hardly elapsed when the bodies became putrid. Bils, pretending that such a result was owing to the jealousy of the professors who placed his preparations in a damp situation, in order to promote decomposition. Bils' treatment of bodies was with himself eminently successful; the secret was buried with him.

Ruysch, also a Dutch physician and anatomist of celebrity, tried to eclipse his adversary, Bils. He succeeded in injecting pieces, which preserved their softness, flexibility and color. His collection so attracted general attention that it was visited by all the curious of Europe. It is said that Peter the Great during a visit to this museum, was so attracted by the embalmed body of a little child, which appeared to invite him with a smile, that he kissed it. Ruysch sold his collection, at the entreaties of Peter the Great, for 30,000 florins. Although seventy-nine years old, he immediately recommenced forming a collection, which he succeeded in doing in two years. In dying, in 1731, he also carried off with him the secret of his admirable injections.

Darconville was the first who discovered, in 1762, the preservative properties of corrosive sublimate, but we are indebted to the illustrious Chaussier for the practical use of this drug in preserving animal matter. Beclard, chief of the anatomical works of the faculty of medicine of Paris, applied the sublimate in embalming bodies. Charged with preserving the body of a young man who died with hectic fever, (the parents refusing to have the body opened,) after making numerous punctures and incisions in every portion of the body, he placed it in a solution of corrosive sublimate, in which it was kept for two months. When taken out, it was dried for a few days, and then enclosed in a glass case, where it remained for a year without smell, or the slightest appearance of alteration. It was then given to the family. The skin was discolored grayish, and the features were somewhat changed from the thinning of the lips, cheeks, eyelids and ears.

Bugliaretti, an Italian physician, united arsenic with sublimate. He injected with this solution the primitive carotid artery, the right jugular vein, the external iliac on both sides, and by using a trocar, he forced the fluid into the thorax and abdomen. The results obtained, appeared to be very similar to the preceding.

Dr. Tranchina, of Naples, acquired a great reputation in Italy for preserving bodies. His method consisted in an injection of a solution composed of 4 lbs. of arsenic in 10 lbs. of water. This mode of preservation, very dangerous for dissectors, did not serve the purpose of embalming, for the body became livid and atrophied in drying, till only a skeleton remained, covered with skin from which the cuticle had peeled.

In 1822, M. Gannal, manufacturer of glue, discovered that a solution of salt and alum would prevent fermentation. With this mixture in connection with a small quantity of arsenite of soda, he injected the body of a child, which was left on the tables of the Morgue for three months, and from which he attained a great reputation.

It is nearly fifty years since chloride of zinc was first used in England for preserving animal matters. Sucquet took out a patent for preserving pieces, by first injecting them with sulphate of soda, and then plunging them in a solution of chloride of zinc.

M. Granger had been previously acquainted with the antiseptic properties of the sulphate of zinc, and a young savant, M. Gratiolet, conservator of comparative anatomy at the Garden of Plants, had tried it for preserving anatomical pieces. After numerous experiments he abandoned this salt, which did not preserve sufficiently, as the tissues became discolored. The skin resembled parchment, and the muscles diminished more than a third of their volume. Although injections of this salt tried at the anatomical rooms in Paris were unsuccessful, it is still used by anatomists in preserving subjects.

Dr. Roux, of Nimes, teaches the following system: It is impossible to find an antiseptic, which will preserve all subjects. The following circumstances should be taken into consideration: 1st. The constitution of the subject. 2d. The cause of death. 3d. The temperature. Anatomists must have daily observed in the dissecting room, that putrefaction is differently produced : in some subjects it shows itself with extreme rapidity, in others, some days elapse, and a few might be kept for even weeks, without much decomposition. From this fact, he concludes that the choice of an antiseptic agent depends upon the character of the substance which it is intended to preserve—that is to say, upon each subject—should be chemically treated according to the constitution, cause of death, and influence of temperature. After long experience, this anatomist lays down the following rules:

A young animal is best preserved by using a sulphate; a sulphite for an animal at puberty; and a chloride for an adult; and lastly, to prevent mould from appearing on the surfaces pour over them either some essential oil, ether, or chloroform. There is no universal antiseptic agent. By following these rules, astonishing results will be obtained.

Preservation of Human Bodies.—No people have succeeded so well as the ancient Egyptians in preserving the bodies of their friends and relatives from decomposition. We have been at the vast Necropolis of Sakkara, and watched the process of dragging up the mummies from the deep pits in which they had rested for at least three thousand if not four thousand years. The restless Bedouin Arabs have been carrying on the revolting occupation of rifling those deep, capacious vaults in which many hundred bodies were artistically packed, several centuries, for the sake of the jewelry, shoes, caps and specimens of ancient arts that are thus brought to light; and although the business is still actively pursued, it is hadly probable that there will be any apparent diminution of mummies a thousand years hence.

This merely demonstrates the denseness of the Nilotic population through a long series of Pharaonic ages, but also the universal custom of embalming all the dead. Indeed, the same care bestowed in the mummification of human beings in Egypt, whether from religious or hygienic views, was also extended to dogs, cats, birds, crocodiles, etc., so that countless millions will not over-express the number still remaining in the most perfect state of preservation, a proof of all that might be collected on this curious and interesting subject.

A strong desire was evinced both in France and England, to prevent the decay of their early sovereigns, but their efforts, based upon no scientific principles, were very imperfect, so that it was quite rare to find a well-preserved body in any of the royal vaults in Europe. Generally they are in deep, damp places, under floors, or beneath low, massive arches, where no rays of sun-light ever appear, to dissipate the sweating moisture that corrupts whatever is placed within the gloomy resting-places of kings and potentates.

The royal vaults in which the whole line of electors, emperors, empresses and the families of the rulers of the Austrian empire are placed for the sleep of death, are dry, tolerably light and admirably ventilated. What the condition of the bodies may be in their costly sarcophagic and metallic coffins is of course unknown, as no mention is extant of any explorations for ascertaining.

The sarcophagus in which the august remains of Maria Theresa were laid—which was constructed under her own eyes, at an enormous cost, is a massive metallic structure occupying as much space on the floor as a large-sized bedstead. It is about five feet high, having magnificent metallic statuary at the corners, with curiously draped and winged figures as accompaniments. The Duke of Reichstadt, the son of Napoleon le Grand, is in a plain, unadorned metallic coffin, resting on a stool at the side of the wall. It has a dull metallic appearance, like tarnished iron. Possibly it may be zinc.

The Empress Louisa Maria, the second wife of Napoleon, the mother of Reichstadt, who died reigning Duchess of Parma, is in a similar looking coffin, placed in a like position, a few feet from her son.

But of all the modern final reposing places of royalty we have personally examined, those of the Sultans of Turkey are the most gorgeous and extraordinary in all respects. It would require a more severe examination of packed-away manuscripts, written over the mouldering

remains of those ferocious monsters,—from Mahomet the Second to Mahomoud the Second, the father of the present Pedisha, Abdel Mejid, than we care to undertake, for particulars, and thus we close these hasty observations by showing the condition of some of the kings of England during eventful historical periods.

The English evidently desired to so protect the bodies of their early and later kings that they should resist the chemical tendency to decomposition. They partially succeeded in a few instances, only, as will be noticed in the following collection of facts.

King Edward I. died in July, 1307, and notwithstanding his injunctions, was buried in Westminster Abbey in October of the same year. It is recorded that he was embalmed, and orders for renewing the cerecloth about his body were issued in the reigns of Edward III. and Henry IV. The tomb of this monarch was opened, and his body examined in January, 1774, under the direction of Sir Joseph Ayloffe, after it had been buried four hundred and sixty-seven years. The following account is extracted from a contemporaneous volume of the Gentleman's Magazine:

"Some gentlemen of the Society of Antiquarians, being desirous to see how far the actual state of Edward First's body answered to the methods taken to preserve it, obtained leave to open the large stone sarcophagus, in which it is known to have been deposited, on the north side of Edward the Confessor's chapel. This was accordingly done on the morning of January 2, 1774, when in a coffin of yellow stone they found the royal body in perfect preservation, inclosed in two wrappers; one of them was of gold tissue, strongly waxed, and fresh, the other and outermost considerably decayed. The corpse was habited in a rich mantle of purple, paned with white, and adorned with ornaments of gilt metal, studed with red and blue stones and pearls. Two similar ornaments lay on the hands. The mantle was fastened on the right shoulder by a magnificent *fibula* of the same metal, with the same stones and pearls. His face had over it a silken covering, so fine, and so closely fitted to it, as to preserve the features entire. Round his temples was a gilt cornet of fleurs de lys. In his hands, which were also entire, were two sceptres of gilt metal; that in the right surmounted by a cross fleure, that in the left by three clusters of oak leaves, and a dove on a globe; this sceptre was about five feet long. The feet were enveloped in the mantle and other coverings, but sound, and the toes distinct. The whole length of the corpse was five feet two inches."

Edward I. died at Burgh-upon-Sands, in Cumberland, on his way to Scotland, July 7, 1307, in the sixty-eighth year of his age.

Another instance of partial preservation, is that of the body of King Charles I., who was beheaded by his subjects in 1649. The remains of this unfortunate monarch are known to have been carried to Windsor, and there interred by his friends without pomp, in a hasty and private manner. It is stated in Clarendon's History of the Rebellion, that when his son, Charles II., was desirous to remove and re-inter his corpse at Westminster Abbey, it could not by any search be found. In constructing a mausoleum at Windsor in 1813, under the direction of George IV., then Prince Regent, an accident led to the discovery of

this royal body. The workmen, in forming a subterraneous passage under the choir of St. George's Chapel, accidentally made an aperture in the wall of the vault of King Henry VIII. On looking through this opening it was found to contain three coffins, instead of two, as had been supposed. Two of these were ascertained to be the coffins of Henry VIII. and one of his queens, Jane Seymour. The other was formally examined, after permission obtained, by Sir Henry Halford, in presence of several members of the royal family, and other persons of distinction. The account since published by Sir Henry, corroborates the one which had been given by Mr. Herbert, a groom of King Charles's bedchamber, and is published in Wood's Athenæ Oxoniensis.

"On removing the pall," (says the account,) "a plain leaden coffin presented itself to view, with no appearance of ever having been inclosed in wood, and bearing an inscription, 'King Charles, 1648,' in large, legible characters, on a scroll of lead encircling it. A square opening was then made in the upper part of the lid, of such dimensions as to admit a clear insight into its contents. These were, an internal wooden coffin, very much decayed, and the body carefully wrapped up in cere-cloth, into the folds of which a quantity of unctuous matter, mixed with resin, as it seemed, had been melted, so as to exclude, as effectually as possible, the external air. The coffin was completely full, and, from the tenacity of the cere-cloth, great difficulty was experienced in detaching it successfully from the parts which it enveloped. Wherever the unctuous matter had insinuated itself, the separation of the cere-cloth was easy; and where it came off, a correct impression of the features to which it had been applied, was observed. At length the whole face was disengaged from its covering. The complexion of the skin of it was dark and discolored. The forehead and temples had lost little or nothing of their muscular substance; the cartilage of the nose was gone; but the left eye, in the first moment of exposure, was open and full, though it vanished almost immediately; and the pointed beard, so characteristic of the period of the reign of King Charles, was perfect. The shape of the face was a long oval; many of the teeth remained; and the left ear, in consequence of the interposition of the unctuous matter between it and the cere-cloth, was found entire.

"It was difficult, at this moment, to withhold a declaration that, notwithstanding its disfigurement, the countenance did bear a strong resemblance to the coins, the busts, and especially to the picture of King Charles the First, by Vandyke, by which it had been made familiar to us. It is true that the minds of the spectators of this interesting sight were well prepared to receive this impression; but it is also certain that such a facility of belief had been occasioned by the simplicity and truth of Mr. Herbert's narrative, every part of which had been confirmed by the investigation, so far as it had advanced; and it will not be denied that the shape of the face, the forehead, the eyes, and the beard, are the most important features by which resemblance is determined.

"When the head had been entirely disengaged from the attachments which confined it, it was found to be loose, and without any difficulty was taken out and held up to view. The back part of the scalp was entirely perfect, and had a remarkably fresh appearance; the pores of

the skin being most distinct, and the tendons and ligaments of the neck were of considerable substance and firmness. The hair was thick at the back part of the head, and in appearance nearly black. A portion of it, which has since been cleaned and dried, is of a beautiful dark brown color. That of the beard was a redder brown. On the back part of the head it was not more than an inch in length, and had probably been cut so short for the convenience of the executioner, or perhaps by the piety of friends soon after death, in order to furnish memorials of the unhappy king.

"On holding up the head, to examine the place of separation from the body, the muscles of the neck had evidently retracted themselves considerably; and the fourth cervical vertebra was found to be cut through its substance transversely, leaving the surfaces of the divided portions perfectly smooth and even, an appearance which could have been produced only by a heavy blow, inflicted with a very sharp instrument, and which furnished the last proof wanting to identify King Charles the First."

The foregoing are two of the most successful instances of posthumous preservation. The care taken in regard to some other distinguished personages has been less fortunate in its result. The coffin of Henry VIII. was inspected at the same time with that of Charles, and was found to contain nothing but the mere skeleton of that king. Some portions of beard remained on the chin, but there was nothing to discriminate the personage contained in it.

During the present century, the sarcophagus of King John has also been examined. It contained little else than a disorganized mass of earth. The principal substances found, were some half decayed bones, a few vestiges of cloth and leather, and a long, rusty piece of iron, apparently the remains of the sword-blade of that monarch.—*The Medical World*.

Revival of Urn-burial: by the Editor of the Edinburgh Medical Journal.—A curious discussion has been raised by the Académie de Médecine of Paris, on the mode of disposing of the dead. Several of the leading Paris journals, particularly the "Presse" and the "Siècle," defend with great boldness the assertion of the Académie, that the vicinity of Père la Chaise and the cemetery of Montmartre is gradually introducing new diseases amongst the working classes; and that in summer time, the hospitals are crowded with the victims of pestilence engendered by the foul air of the graveyards in the neighborhoods of Paris. The discussion is likely to lead to some result and to become a party question; for a new journal, to be devoted entirely to this one subject, has just appeared. This journal, called "La Crémation," is edited by two of the firit writers of the "Presse," and is supposed to be quite in accordance with the sentiments of the government. M. Alexandre Bonneau proposes to replace all cemeteries adjoining to all great cities by an edifice to be denominated a "sarcophagus." This edifice to occupy the highest spot of ground in the city, "where the corpses of both rich and poor should be conveyed, there to be laid out on a metallic tablet, which, sliding by an instantaneous movement into a concealed

furnace, would cause the whole body to be consumed in the space of a few minutes." With true French instinct, M. Bonneau proceeds to urge not only the utility to the public, but also the interests of art in this new method of disposing of the dead, for he points out with great complacency the new element of prosperity to the artists existing in the furnishing of funeral urns, which he declares would soon open a new source of expense and luxury to the rich. "For who would not love to preserve the ashes of his ancestor? The funeral urn would soon be found to replace on our consoles and mantel-pieces, the present ornaments of bronze clock and china vases now found there." All this may seem a misplaced pleasantry to English minds; but in Paris, these things find serious men to write and fight in their defense; and we cannot help feeling rather startled on reading the sanitary report which first led to their discussion. "The vicinity of the cemeteries is a constant source of mortality. No matter from what quarter the wind blows, it must bring over Paris the putrid emanations of Père la Chaise, of Montmartre, or Montparnasse; and the very water which we drink, being impregnated with the same poisonous matter, we become the prey of new and frightful diseases of the throat and lungs, to which thousands of both sexes fall victims in the spring and autumn of every year. Thus the *angine couenneuse*, which baffles the skill of all our most experienced medical men, and which carries off its victims in a few hours, is traced to the absorption of the vitiated air into the windpipe, and has been observed to rage with the greatest violence in those quarters situate on the outskirts of the town, and, consequently, the nearest to the cemeteries."

The latter argument has created many converts to the opinions of M. Alexander Bonneau; and the first number of "La Crémation" has excited much interest. After a long interval of deseutude, Sir Thomas Brown's "Urn-burial" may come to be consulted as a work for practical details—and the urns in our museums, instead of representing obsolete utensils, may become models for those vases which present such charms for M. Bonneau. Perhaps, however, the vase theory is a step too far in advance, and the Parisians, if they see their way to consumption by fire, may prefer burying the ashes of their friends in the earth, as was done with the remains of Shelley's burned body, rather than that the dust of humanity, however rich the enclosing caskets, should be chimney ornaments in drawing-rooms.

The utilitarian character of the English, as distinguished from the more fanciful temperament of the French, is exemplified in the mode of interment adopted in the case of the late Sir William Temple, as detailed in the "Times" some days ago. The body was interred in a bed of charcoal, whilst the gases from the coffin are conducted by a pipe to the outside of the church. The leading journal speaks in high terms of the conserving influence thus exercised on the lungs of worshippers; but we are not so sanguine as to the benefits of the system. It may do in rare instances of intra-mural burial, but if universally adopted, congregations would be saved at the expense of the general public. Cremation is a process to which the British mind will not soon be reconciled, and the only graveyard reform presently within reach is distant cemeteries and deep sepulture amongst charcoal or other deodorizing substances.—*Abs. Med. Sci. No.* 24.

Dr. Londe, member of the French Academy of Medicine, has contributed to the *Revue de Thérap. Méd. Chirurg.*, (Nov. and Dec., 1856,) several papers of interest upon the cemeteries of Paris in relation to the modes of interment, exhumations, hygienic influences, etc. Emanations from putrefying animal bodies, he avers, cause, when concentrated, vertigo, *malaise*, nausea, loss of appetite, fainting, asphyxia, and death. Hence, he argues against the former practice of burying saints and others under the alters of the churches—a practice, which, in 1744, a Huguenot professor of Montpellier was bold enough to oppose as not only inconvenient but dangerous to health.

In 1776 the government of France restricted the privilege of burial in the churches to a few of the higher orders of the clergy. In 1804 this practice was wholly interdicted, not only as to the churches but in regard to the densely inhabited or central districts of cities.

Interment in towns, in churchyards, within the walls and under the altars of churches, is attributable to christians rather than pagans. This pernicious practice, which originated in the fourth century of our æra, was directly at variance with the more salubrious method of disposing of the dead in ancient Greece and Rome, namely, cremation or burning, together with the interment of the ashes and burnt bones without the cities. The burning of the dead among the ancient Greeks was an almost invariable practice; even their monumental cenotaphs did not contain dead bodies at all. Among the Romans all the dead were not burned. Many were interred in the ground but always beyond the limits of the cities. The early christians, who were opposed to cremation, and who at first adopted the Hebrew method of burying in the earth, sometimes in vast excavations or caves, viewing the body as resting only for a time in the grave, in anticipation of "the resurrection and the life," from the best motives deposited their dead in the vicinity of churches, and finally in the churches themselves. This last honor was, however, restricted to personages illustrious for their piety or position. The genius of philanthropy guided by lights of science is now directed towards the correction of this insalubrious practice, and its total abandonment may be expected at no very remote period.

Of a Parisian cemetery, *Père la Chaise*, the author of "the American in Paris" (1839) says: "thirty years ago it had only fourteen tombs." Carter, in his letters, says "that this cemetery, made by Napoleon, was opened for the first burial, May 21, 1814, and that by the year 1825, it had received one hundred thousand dead. It contains seventy acres, being three miles from the centre of the city, upon the declivity of Mount St. Louis, having rocks, hills, vales, shade," etc.

The first named work gives a summary of the regulations for the inhumation of the dead in towns and cities: "All cemeteries are required to be located beyond or without the towns, avoiding low, wet, confined situations. The dead bodies are to be covered with at least four feet of earth, with four feet interval between each, and two feet at the head and foot, about fifty-two square feet for each corpse. The graves are disposed of in perpetuity, or in temporary cessions of six years; the former at twenty-five dollars per mètre of three feet, two mètres being required for a grave, and the latter at ten dollars; these being disposable anew at the end of the term, the first purchaser having the refusal. All the funerals are in the hands of a company, who have their office, keep a register of the dead, attend all wants, carriages, grave-diggers, weepers, etc. They have a fixed price for the rich, which enables them to bury the poor for nothing."

Dr. Londe says, that although the bodies are destroyed in two years, the grants, for greater security, in this behalf, now extend to the end of the fifth year. He says that in the cemetery Montparnasse, one hundred and twenty-two thousand have been interred within the last twenty years. In fifty years it will have received five hundred thousand dead bodies.

Interment in the *fosses* (graves) is the most usual mode in Paris. Bodies buried in vaults (*caveaux*) sometimes become desiccated or mummified, in positions favorable to the drying process. Examples of this kind of mummification have sometimes, though rarely, occurred in the vaults in New Orleans. In the Catholic cemetery, No. 2, as the sexton informed the writer in 1840, there had been a vault opened in the upper tier, where was found the body of a man which had been long entombed, and which had never undergone putrefaction. It was dry, but otherwise little changed; the eyes, though desiccated, remained; the hair and whiskers, firmly set; the color of the skin, natural.

In dilapidated tombs, when the coffins had been placed on or near the ground, I found that the bones not yet wholly decomposed, might be crushed into a coarse powder by grasping them in the hand. The bones of a Frenchman aged 49, buried in 1809, and those of a man aged 22, buried in 1815, crumbled into dust from very slight pressure; of their coffins not a vestige remained.

In the vaults of the New Orleans cemeteries, a body buried in the summer is generally decomposed in three months; if buried in the winter, six months may be often required to separate the bones, and dissipate the offensive gases. At all seasons, when the weather is warm, fœted emanations are apt to abound. Owing to heat and humidity,

mahogany coffins seldom last two years; those of cypress have been found perfectly sound after thirteen years.

The Delta of the Mississippi rivals that of the Nile in whatsoever may be inconvenient and insalubrious in connection with inhumation. If cremation should ever become customary, it will be more suitable for New Orleans than for most cities. Whether New Orleans is, or is not the best place to live in, is an open question, but there can be little doubt that it is one of the worst places for such as desire a cheap, dry, convenient, and comfortable grave.

The greatest anniversary in New Orleans is that of the First of November—All Saints' Day—when the city pours its living masses into the Catholic cemeteries, either as mourners for the dead or spectators of the gorgeous decorations of the tombs—a social feature highly characteristic of this as compared with any other city of the Republic. At this season, which is usually dry and comparatively cool, the decomposition of the dead is considerably retarded, and the offensive emanations are no longer insupportable. Yet at all seasons, offensive gases escape and spread through the air, as the dead are interred not *in but above* the ground. The defective construction of the tombs and vaults, the perviousness, porosity, elevation and fissures, and even falling of the brick walls, in which sometimes wood is used, the bad quality or temporary duration of the mortar, the humidity of the soil, and the heat of the sun, all combine to favor the escape of fœtid gases, which are at least repulsive, even should they not be so deleterious to the health of the city as some writers have supposed. At all seasons, and at unexpected hours, mourners will sometimes visit and continue long at these tombs, pouring out the saddest lamentations, as I have witnessed, myself unperceived, while making statistical researches into monumental histories of the dead.

Without dwelling upon the sanitary influences of the New Orleans cemeteries, it may be remarked that their moral aspect is, perhaps, conformable to the French type, as set forth by a celebrated authoress of England, whose moral tableau of the cemetery of *Père la Chaise* will close this panorama of the tomb:

"Many groups in deep mourning were wandering among the tombs; so many, indeed, that when we turned aside from one, with the reverence one always feels disposed to pay to sorrow, we were sure to encounter another. This manner of lamenting in public seems so strange to us! How would it be for a shy English mother, who sobs inwardly and hides the aching sorrow in her heart's core—how would she bear to bargain at the public gate for a pretty garland, then enter amid an idle throng,

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with the toy hanging on her finger, and, before the eyes of all who chose to look, suspend it over the grave of her lost child? An English woman surely must lose her reason either before or after such an act; if it were not the effect of madness, it would be the cause of it. Yet such is the effect of habit, or rather of the different tone of manners and of mind here, that one may daily and hourly see parents, most devoted to children during their lives, and most heartbroken when divided from them by death, perform with streaming eyes these public lamentations. It nevertheless is impossible, let the manner of it differ from our own as much as it may, to look at the freshly trimmed flowers, the garlands and all the pretty tokens of tender care which meet the eye in every part of this wide-spread mass of moral nothingness, without feeling that real love and real sorrow have been at work.

"One small enclosure attracted my attention as at once the most *bizarre* and the most touching of all. It held the little grassy tomb of a young child, planted round with choice flowers, and crucifix and other religious emblems, several common play-things, which had doubtless been the latest joy of the lost darling. His age was stated to have been three years, and he was mourned as the first and only child after twelve years of marriage. Below this melancholy statement was inscribed—

Passants ! priez pour sa malheureuse mère !
(Travellers ! pray for his unhappy mother !)

Might we not say that

Thought and affection, passion, death itself,
They turn to favor and to prettyness ?"

Paris and the Parisians, 115

ART. VII.—*Absorption and Intestinal Digestion.*

TALLAHASSEE, FLORIDA.

BENNET DOWLER, M. D. :— *Dear Sir :* —If it will not be troubling you too much you will oblige me by giving your opinion on the following subject, viz. : Can food administered by the skin, rectum, or in any other way than by the mouth *into* the *stomach*, afford *nourishment* to the body ?

This question has been suggested to me, by not unfrequently seeing advice given, to support life by administering food either endermically or by enemata, where the communication between the mouth and stomach was impervious, and, as it seemed to involve the important physiological inquiry into the necessity for the digestive and assimilative processes as *preparative* of the articles of food, for their purposes, I have taken this liberty which I hope you will excuse, and accede to my request by replying through the New Orleans Medical and Surgical Journal. I am very respectfully yours, etc.,

G. TROUP. MAXWELL, M. D.

Of the absorption of medicines by the skin, and by the large intestine there can be no doubt whatever. Mercurial ointment, cantharidian blisters, infusions of tobacco and stramonium and many medicines and poisons act with great energy through the skin, often without the necessity of previously removing the epidermis. The same energetic effects are more quickly and generally produced by medicated enemata. Both of these methods of medication should be more generally adopted as being very effectual in themselves, and less likely to cause injurious effects especially when gastric disease is present, than medication through that great central organ, the stomach, the more special yet not the exclusive seat of alimentary digestion.

The rapidity with which spirits and laudanum sometimes act in the large intestine in incipient cholera should be borne in mind, as it may happen that while the power of absorption by the stomach is greatly impaired or lost, that of the large intestine may not be equally affected.

The digestion of medicines in the large intestine is presumptive proof that the digestion of diet is what the general belief regards it to be, a reality. Hence, physicians direct enemata of soup, etc., as nourishment. The dogma that no digestive action can take place below the ileo-cæcal valve cannot be received as indisputable. If, in this respect the large intestine is usually inert, may it not occasionally assume vicariously, the function of the stomach in the disabled condition of the latter?

A further examination of this subject will not now be attempted.

Absorption of Medicinal Substances Introduced as Enemata into the Large Intestine.—M. Briquet read a memoir on this subject, before the Academy of Medicine, on the 30th of December last, principally in reference to quinia and its salts. The author draws the following conclusions:

"1. The fluid of which the enemata consists may readily enough be carried as far as the cæcum, and consequently be applied to an extensive absorbent surface.

2. The mucous membrane of the large intestine, and the liquids which bathe its surface, exert no chemical influence over the substances introduced into this cavity, in which nothing is absorbed but what was previously in solution.

3. When we administer by injection, per anum, salts of quinine, in solution, in a dose less than fifteen grains, a little more than a third of this quantity has disappeared, and has consequently been absorbed.

4. When doses larger than fifteen grains are administered, they are badly received, and not more than a fifth, or even a sixth of the quantity is absorbed.

5. At whatever dose we give the sulphate of quinine (by injection?) cerebral symptoms are, in common, produced only very slowly, and in minor degree.

6. No traces of absorption are perceived before an hour has elapsed after the administration of the enema, and at this time but an inconsiderable quantity has been thus disposed of.

7. The duration of the absorbing process is, in general, rather short, and seldom extends beyond two or three days at most.

8. The absorption of the alkaloids of cinchona is not sensibly affected by various degrees of dilution, within, be it understood, certain limits, by the greater or less viscosity of the liquid, nor, finally, by the addition of the salts of morphia.

9. Young people absorb better than adults; old persons of either sex absorb very imperfectly.

10. The alkaloids of cinchona, administered by enema, in doses less than fifteen grains, may produce by this means all the good effects to be expected from the alkaloids given in small doses by the mouth, and may very well be substituted for the latter.

11. The case is different with large doses; which are never absorbed in sufficient quantity to produce energetic stupefying effects (quininism?).

12. In general, larger doses than thirty grains of sulphate of quinine are not borne by the large intestine.

These conclusions are applicable in a greater or less degree to the various substances employed as enemata."—*Rev. de Thérap. Méd. Chirurg., Jan.* 15.

We may expect from the report of a Committee or Commission, appointed by the Academy of Medicine, for the purpose of an analysis of the conclusions reached by M. Briquet, which, with apparent mathematical precision, seem to be deficient in their application to clinical medicine.—*North Am. Med. Chir. Rev., May*, 1857.

ART. VIII.—*The American Medical Association.**

FROM the proceedings of the American Medical Association at its tenth Annual Session, held at Nashville, Tennessee, May, 1857, as published in the *Nashville Journal of Medicine and Surgery*, the following extracts are taken upon Medical Education, etc.

The retiring president, Prof. ZINA PITCHER, M. D., said:

We have stated with philosophical accuracy, but perhaps not with strict regard to literal historic truth, that this association was formed to repair the evils resulting from the dissevered relation of medicine to

* Officers of the Association for 1857-8:
President.—DR. PAUL F. EVE, of Tennessee.
Vice Presidents.—R. J. Breckinridge, of Kentucky, D. M. Reese, of New York, W. H. Byford, of Indiana, and Henry F. Campbell, of Georgia.
Secretaries.—Robert C. Foster, of Tennessee, A. J. Semmes, of Washington City
Treasurer.—Caspar Wistar, of Philadelphia.
The next place of meeting, Washington City.

the State authority. Whatever formula we use in expressing the idea, or by whatever rationale we explain our conception of the evils said to exist, for which it was designed to furnish the remedy, the records show that its mission was to reform the medical schools of the United States, and to improve the preparatory education of students of medicine.

The development of organic bodies depends upon the absorption and assimilation of extraneous materials. If the same law regulates the growth of institutions, it becomes a matter of some interest to inquire whether the schools are an out-growth of the profession, or whether the profession is the product of the schools, for in either case, there is a labor for us to perform, and the answer to this question determines the place of beginning.

Lest a doubt might arise as to the correctness of the opinion, we wish to impress upon the professional mind, that society itself, and not we alone, are amenable to censure for the abasement to which the profession of medicine had descended at the date of our associated existence, let us for a moment look into the records of the past, to see whether we cannot find an antecedent era, in which the world has been subjected to similar moral cataclysms, by which ancient institutions were broken up, their materials converted into drift, to lay the foundations of newer and more horizontal strata, from which we may draw lessons of wisdom applicable to our own time and our own condition. * * * *

If our design has been accomplished, we have shown that the work of medical regeneration is to be commenced by the profession, whose success is made dependent upon an intelligent concurrence of the popular judgment.

What is there then, gentlemen, left for us to do, but to declare the perpetuity of this association, and renew our vows of fidelity to the requirements of its constitution?

In this proclamation and in these vows are involved the pledges, that in our professional acts we will honor the principles of moral law, which lie at the foundation of our code of medical ethics. That we will use our individual influence, and so try to direct the power of this association, as to secure a higher mental culture to medical students and candidates for medical honors. When this is accomplished, the medical schools will rise in character as a correlative effect, and the profession establish for itself a legitimate claim to public confidence and popular esteem.

Dr. Boring offered the following resolutions, which he proceeded to discuss:

Resolved, That this association has not the power to control the subject of medical education.

Resolved, That the great objects of this association are the advancement of medical science, and the promotion of harmony in the profession.

Resolved, That the attempt upon the part of this body to regulate medical education, having most signally failed in its object, and already introduced elements of discord, any further interference with this sub-

ject would not only be useless, but calculated to disturb and distract the deliberations of this association.

Dr. Currey offered the following resolutions in lieu of the whole:

Whereas, The subject of medical education has been committed at each annual session to standing committees, and various suggestions have been proposed, which the association has adopted, and recommended to private instructors and to the medical colleges,

Resolved, That a committee of five be appointed by the committee on nominations, as a special committee, to be composed of members who are in no respect connected with any medical school, to devise a *System of Medical Instruction*, to be presented for the consideration of this association at its annual session in 1858.

Resolved. That the proposed system shall set forth a uniform basis, upon which our medical institutions shall be organized, as well as have reference to the best mode of securing the preparatory medical instruction to the student, and that consequently the legitimate subjects to be embraced in said system, will include primary medical schools—the number of professorships in medical colleges, the length and number of terms during the year, the requisite qualifications for graduation, and such other subjects of a general character as to give uniformity to our medical system, and preserve harmony and friendly intercourse in the ranks of the profession.

Resolved, That, upon the adoption of the proposed system by the association, all institutions which may conform to it, shall be entitled to representation at the annual sessions of this association, and none others.

Adopted.

D. Meredith Reese, M. D., LL. D., delegate from New York, reports in *The American Med. Gaz.*, of which he is editor, that "An important alteration in the constitution will come up for consideration at the next meeting. It is proposed by Professors Gunn and Palmer, of the Michigan University, and is intended to deprive the medical colleges of any distinct representation by delegates, as now; requiring the professors to be appointed in common with their brethren by the State and county societies, unless they are permanent members. Such a radical change in the constituency, will doubtless be resisted, and the proposition will be warmly discussed."

Dr. Bowling, chairman of the committee on prize essays, submitted the report of said committee as follows:

The committee on prize essays report that four essays have been received, each possessing great merit. The committee selected the following two essays for the two prizes, provided for at the last meeting of this association:

1st. One entitled "The Excreto-Secretory System of Nerves. Its relation to Physiology and Pathology," signed Henry Fraser Campbell, Georgia.

2nd. "Experimental researches relative to the Nutrition, Value and Physiological Effects of Albumen, Starch, and Gum, when singly and exclusively used as Food," signed William A Hammond, M. D., Assistant Surgeon, U. S. Army.

ART. IX.—*Report on the Construction of Hospitals for the Insane, made by the Standing Committee of the Association of Medical Superintendents of American Institutions for the Insane, and unanimously adopted at its meeting in Philadelphia, May* 21, 1851.

1. EVERY hospital for the insane should be in the country, not within less than two miles of a large town, and easily accessible at all seasons.

2. No hospital for the insane, however limited its capacity, should have less than fifty acres of land devoted to gardens and pleasure grounds for its patients. At least one hundred acres should be possessed by every State hospital, or other institution, for two hundred patients, to which number these propositions apply, unless otherwise mentioned.

3. Means should be provided to raise ten thousand gallons of water daily to reservoirs that will supply the highest part of the building.

4. No hospital for the insane should be built without the plan having been first submitted to some physician or physicians who have had charge of a similar establishment, or are practically acquainted with all the details of their arrangements, and received his or their full approbation.

5. The highest number that can, with propriety, be treated in one building is two hundred and fifty, while two hundred is a preferable maximum.

6. All such buildings should be constructed of stone or brick, have slate or metallic roofs, and as far as possible be made secure from accidents by fire.

7. Every hospital having provision for two hundred or more patients, should have in it at least eight distinct wards for each sex, making sixteen classes in the entire establishment.

8. Each ward should have in it a parlor, a corridor, single lodging rooms for patients, an associated dormitory, communicating with a chamber for two attendants; two clothes rooms, a bath room, a water closet, a dining room, a dumb waiter, and a speaking tube, leading to the kitchen or other central part of the building.

9. No apartments should ever be provided for the confinement of patients, or as their lodging, that are not entirely above ground.

10. No class of rooms should ever be constructed without some kind of window in each, communicating directly with the external atmosphere.

11. No chamber for the use of a single patient should ever be less than eight feet by ten, nor should the ceiling of any story occupied by patients be less than twelve feet in height.

12. The floors of patients' apartments should always be of wood.

13. The stairways should always be of iron, stone, or other indestructible material, ample in size and number, and easy of ascent, to afford convenient egress in case of accident from fire.

14. A large hospital should consist of a main central building with wings.

15. The main central building should contain the offices, receiving rooms for company, and apartments entirely private, for the superintending physician and his family, in case that officer resides in the hospital building.

16. The wings should be so arranged, that if rooms are placed on both sides of a corridor, the corridors should be furnished at both ends with movable glazed sashes for the free admission of both light and air

17. The lighting should be by gas, on account of its convenience, cleanliness, safety and economy.

18. The apartments for washing clothing, etc., should be detached from the hospital building.

19. The drainage should be under ground, and all the inlets to the sewers should be properly secured to prevent offensive emanations.

20. All hospitals should be warmed by passing an abundance of pure fresh air from the external atmosphere, over pipes or plates, containing steam under low pressure, or hot water, the temperature of which, at the boiler, does not exceed 212 degrees F., and placed in the basement or cellar of the building to be heated.

21. A complete system of forced ventilation, in connection with the heating, is indispensable to give purity to the air of a hospital for the insane, and no expense that is required to effect this object thoroughly, can be deemed either misplaced or injudicious.

22. The boilers for generating steam for warming the building should be in a detached structure, connected with which may be the engine for pumping water, driving the washing apparatus and other machinery.

23. All water closets should, as far as possible, be made of indestructible materials, be simple in their arrangement, and have a strong downward ventilation connected with them.

24. The floors of bath rooms, water closets and basement stories, should, as far as possible, be made of materials that will not absorb moisture.

25. The wards for the most of the excited class, should be constructed with room on but one side of a corridor, not less than ten feet wide, the external windows of which should be large, and have pleasant views from them.

26. Wherever practicable, the pleasure grounds of a hospital for the insane should be surrounded by a substantial wall, so placed as not to be unpleasantly visible from the building.—*Report of the State Lunatic Asylum of New York*, 1857.

ART. X.—*Case of Gunshot Wound of the Heart and Stomach:* By J. H. GRANT, M. D., of Conwayborough, South Carolina.

I WAS called, on the 3d February last, to see E. S———, who, while in the performance of the duties of a constable, received a ball from a revolver, in the hands of J. B———, a citizen of this district. Having just returned from a long ride, and having other pressing professional engagements, it was out of my power to visit him that evening. He was visited, however, by my partner, Dr. J. F. Harrell, and Dr. J. E. Grant. They reached the patient about midnight. The following note, which I received from them early next morning, will give some idea of his condition :

"3 O'CLOCK, A. M.

"*Dear Doctor:*—S. is no better. He is cold and pulseless—has vomited coagulated blood. Great restlessness, with disposition to syncope when erect. Action of the heart irregular. The ball entered a little to the right of the sternum, between the cartilages of the fifth and sixth ribs.

"We have given him opium to quiet him, etc. Please come immediately, and bring a case of instruments, as it is likely we will have to make a *post mortem* examination."

I reached the patient about 11 o'clock. Dr. H. had probed the wound : the probe entered the cavity without resistance. The pulse returned to the wrist about 6 o'clock, A. M. The patient was lying on his back, with a countenance pale and expressive of alarm and distress. The wound was plugged up with coagulated blood and effused lymph. I did not disturb it. Little or no hæmorrhage took place externally.

Appearance of the Wound.—Orifice considerably larger than the ball ; margin of orifice on a level with the circumjacent tissue—neither everted nor inverted.

Reaction had been established ; breathing free and full ; pulse tolerably firm, about one hundred per minute ; some nausea ; no pain, except when he lies on the left side, which he is unable to do, except for a few minutes at a time.

Physical Examination of the Chest.—Thoracic resonance normal on both sides ; respiratory murmur, in all parts of the chest. There were no murmurs nor abnormal bruits about the heart, but its impulse was greatly exaggerated ; sounds could be heard on back and right side of chest.

Diagnosis.—Lungs uninjured ; stomach perforated—hence hæmorrhage into the stomach, and hence vomiting blood. Evacuations per anum indicated the presence of blood. During the first night, when asked where hurt him, he replied, "My heart ; it feels as if it would jump out of me."

The man was in a stooping attitude when he received the wound. The shot was not received directly from the front, but obliquely from the right. Cardiac lesion was not included in the diagnosis ; but since the autopsy has disclosed the fact, this, taken in connection with the

train of threatening symptoms—the profound and protracted collapse—receive an easy explanation: "Nature from her centre, sighing throughout all her works, gave signs of woe that all was lost."

Symptoms.—Thirst great. I may remark, once for all, that his thirst was insatiable till the last. Appetite totally annihilated.

Treatment.—He was put upon calomel and opium, the latter being indispensable to relieve pain and quiet restlessness, and the former was administered with the view to meet the violent inflammation inevitable to traumatic lesion of organs so vital.

After reaction, venesection was also resorted to, for the same purpose. The patient was subjected to physical examination of the organs of breathing and circulation, by myself, but once after this, and their condition found to be, substantially, as above stated. In two or three days after the wound was inflicted, there was observed a tendency to hypercatharsis, though no purgative medicine had been administered. This continued to augment till it amounted to a most violent and obstinate diarrhœa, prostrating the patient, and threatening to bring about a fatal issue. The only remedies that exerted any control over the diarrhœa were acetas plumbi and opii, with interposed doses of mist. creosote; a large blister was applied over the abdomen, and in a few days reäpplied. Finally, brandy and other diffusible stimulants—quinine.

This diarrhœa undoubtedly pointed to severe lesion of vital organs. In about fifteen days the system was brought under the specific influence of mercury; the mouth became sore—the pulse fuller and somewhat slower; he took rice water, and seemed more lively, and hopes were entertained of his recovery. The diarrhœa, however, continued, with more or less severity to the last. He died on the first day of March. The next day, sixteen hours after death, we examined the body. Present, Drs. John H. Grant, J. F. Harrell, and James E. Grant.

Cadaver.—Great emaciation. (I shall omit such necroscopic phenomena, external and internal, as are irrelevant to the object for which this examination was made.) The orifice of entrance was well healed and cicatrized, so that a probe could not be passed through it. A crucial incision was made in the epigastrirm, and the sternum turned back in the usual way. Lungs sound; no adhesion to pleuræ. No effusion of any kind, nor blood, in cavities. A perforation was readily found in that part of the pericardium corresponding to the external orifice and direction of the ball. Upon removing the pericardium, a well defined cicatrix was seen on that part of the heart opposite the perforation in its capsule. The ball entered the right ventricle about an inch from the apex, and emerged from the same on the under side of the heart, before going far enough to enter any other cavity. The points of entrance and exit about two inches apart. The points of exit from the heart and pericardium were not so well defined as those of entrance; the vessels were much injected and the capsule adherent to the heart at that point. This membrane presented marks of inflammation throughout. It contained no fluid. The path of the ball within the ventricle was easily traced; the columnæ carnæ presented at different points bright red spots of an erysipelatous appearance. If these appearances left the

shadow of doubt on the mind, in reference to the cardiac lesion, this was dispelled by the discovery of particles of extraneous matter within the endo-cardial tract. In this were found two hairs and some minute particles of white cloth. These hairs, upon being subjected to microscopic examination, were proved beyond all doubt to have come from the exterior of the chest. Attached to one of these hairs were some minute fibres of white cloth, also. The ball, upon being placed under the microscope, presented minute fibres of white cloth, adherent to its surface. The source of these fibres was doubtless the man's shirt.

A little anterior to the cardiac orifice of the stomach was found a well defined cicatrix, where the ball is supposed to have entered. The organ was perfectly empty, and much contracted or collapsed. The track of the ball through the diaphragm, and the point of exit from the stomach, could not be recognized. These organs, particularly the latter, bore marks of inflammation. The abdominal viscera presented marks of extensive morbid action, particularly the small intestines and their investments. The ball was found resting on the left kidney. This viscus, with its supra-renal capsule, presented a contused and congested appearance.

Remarks.—I might have extended this communication to a much greater length, but my object was to confine myself to the facts relevant to the point at issue.

The above case is remarkable for the length of time the subject of it was in the state of collapse—fifteen hours—if we suppose the system succumbed directly after the wound was inflicted.

It is exceedingly remarkable that a man could live a single hour with traumatic lesion of organs so vital. Further, it is remarkable as regards the length of time he lived without taking any nourishment—twenty-six days.—*Charleston Med. Jour.*, May, 1857.

Art. XI—*Cyanosis:* by Prof. Carson. (From *Trans. Coll. of Physicians* of Philadelphia, Dec., 1856.)

Dr. Carson read the following report of *a case of Cyanosis.* The subject of the following case having lived, in opposition to so many physical obstacles, during a surprisingly prolonged period of time, I have regarded all the details connected with its history as interesting and worthy of record, and have therefore taken considerable pains to note and preserve them.

S. R. was born in Philadelphia, January 26, 1836, and at the time of his birth, was a perfect specimen of cyanosis. He passed through the stages of infancy with no unusual derangement of health, not having developed, however, as his brothers and sister, but remaining puny and contracted in his growth.

In April, 1842, he was attacked by hooping cough, which was of great severity in consequence of the difficulty of respiration on the oc-

currence of the paroxysm, and attended, from time to time, with profuse hæmorrhage from the lungs. From this he recovered slowly, and afterwards, until the winter of 1848, was apparently in good health. I had not occasion to inquire minutely into his condition prior to the attack mentioned, but, at that time, my attention was closely directed towards him, and subsequently, his case was studied attentively. When he was in the best state of physical existence, the following were the features presented: Countenance rather dull, except when roused by emotion, with a leaden hue of the skin; expression of the eye clear, but the adnata permeated by deep crimson vessels ; lips, gums and tongue, purple ; person small, but slowly increasing from year to year ; extremities delicate, with a remarkable enlargement and incurvation (from curvature of the nails) of the ends of the fingers and toes, which were as deeply tinctured as the lips and tongue. The chest was narrow and contracted, prominent in front, and evinced a series of phenomena which were constant until his health began to fail, viz.: perfect resonance on both sides, before and behind ; respiration louder than usual, with no marked signs of pulmonary embarrassment. The impulse of the heart was strong, extending half an inch further on the right side than natural, and seen conspicuously when the chest was exposed ; the frequency of beat amounted to eighty per minute. The action of the heart was accompanied with both sounds, the first sound most feeble, and also a peculiar blowing sound, which was perceptible not only when the ear was applied directly over the heart, but at some distance on the sides of the chest. He participated in the active exercises of boys, at which times I noticed that his respiration was much hurried, but he did not appear to suffer, had a good appetite, good spirits, and an active inquiring mind, which led him to apply himself to his studies, and to excel in such as were presented in succession with advancing age.

In the year 1843, with the view of determining the effect of position upon the cyanosed condition, Dr. Pepper and myself instituted the following experiments :

1. When laid upon his back, with his shoulders moderately elevated, the chest presented some prominence over the cardiac region. Impulse of the heart not strong, beats eighty per minute; dulness on percussion of the cardiac region ; pulse regular, but feeble ; in the carotids, the same as at the wrist. *Bruit de soufflet* distinct. Respiration twenty per minute. The right hand was elevated for two minutes, when it lost its color ; while the left, being pendant, increased in blueness. This trial was now reversed, with the same result.

2. He was placed upon his left side, and in thirteen minutes, the lividity in the lips and the hands, which were placed at rest, horizontally, was diminished, but the left side of the face, where it rested on the pillow, was more injected than the other. In fifteen minutes, no greater effect had taken place. He was now made to lie on his right side, and in fifteen minutes, as much, but no greater, diminution of the blueness had occurred as when upon the left side.

3. With the view to excite the circulation, we directed him to run up stairs and return. He then presented excessive lividity of the lips,

cheeks and hands, great difficulty of breathing, the heart acting tumultuously, and the pulse rapid and irregular. He was placed on his left side, and, in fifteen minutes, the condition was the same as when this had been practised in the previous experiment. He was again directed to run up stairs, and, on returning with the same symptoms, was laid on his right side. In fifteen minutes the same diminution of color took place, and calmness occurred as before, when he had been placed upon the left side, but not to a greater extent, or more rapidly.

4. After inducing augmented blueness by the same exercise, he was laid upon his back, and here, again, it was ascertained that the excessive lividity disappeared with as much rapidity as when placed either on the right or left side.

During the winter of 1848–9, he had an attack of hæmorrhage from the lungs, connected with pneumonia, from which he recovered, and in the spring, resumed his school duties, but his general health was not so good as previously, and during the ensuing autumn, when the cold weather set in, he was obliged to relinquish his studies, becoming a confirmed invalid, and evidently declining.

April 25, 1850, I visited him, and noted the following symptoms: Much emaciation of the whole frame, with extreme delicacy of the upper and lower extremities; countenance pinched, of a leaden hue; eye dull; lips and tongue of a pale purple; pulse, one hundred and sixteen, quick and thready; respiration, thirty, sighing; impulse of the heart decided, but not forcible; sounds of the heart merged into a rough, rasping sound, heard over the whole front of the chest; respiratory murmur louder than natural in the right lung, both anteriorly and posteriorly. In the anterior of the *left* lung, the sounds were masked by that of the heart, but, posteriorly, the middle lobe presented some dulness on percussion, and a distinct, crepitant murmur. Some cough existed, especially at night, with thick, tenacious sputa. He could not remain long in the recumbent posture. Skin cold and moist; tongue coated; appetite poor; bowels regular; complained of erratic pains, and, of late, has suffered from prolapsus ani. Treatment sustaining, and to relieve his sufferings.

August 1. From the time before specified, has been gradually failing; the emaciation has become extreme, and the difficulty of breathing has become so oppressive, as to preclude repose in the recumbent position; respiration hurried, thirty-five per minute; pulse, quick and tense; skin cool; mucous membranes becoming dry and foul; extremities swelling. The anterior of the chest presented the rough, blowing sound, with bare perception of the two sounds of the heart. There was dulness on both sides of the chest, before and behind, and no respiratory murmur discoverable on either side, but, at the upper parts, tubular sounds, and some crepitation, or submucous râle.

16th. Patient, after having suffered under almost agonizing pain through the chest, extending to the extremities, with difficulty of respiration, amounting to asphyxia, the lividity of the face and hands becoming extreme, and cold, clammy perspiration covering his whole body, died at 2, P. M.

Post-mortem Examination.—Sixty-eight hours after death an autopsy was made. The body was exceedingly thin, and the blue tinge of the skin very apparent. The examination was made by my friend, Dr. F. W. Sargent, from which I took the following notes:

Chest.—Upon laying bare the sternum and removing it, strong adhesions were overcome. On endeavoring to remove the lungs, they were found bound to the sides of the chest by strong membranous connections, the result of pleuritis on both sides, but firmer on the left. *Lungs* filled with tubercles as large as peas, as well as in smaller masses, congested, and in some portions hepatized, the posterior portions of both in a state approximating softening, sinking in water. Pericardium adherent firmly to both right and left lung, containing f℥iss of serum. The heart was located with its right edge under the centre of the sternum, the base opposite the second rib, and the apex between the fifth and sixth ribs, length three inches, transverse diameter three inches two lines, much distended with blood, and filled with soft coagula. Auricles distended; *foramen ovale open*, large enough to admit the forefinger (one half inch in diameter.) *The right and left ventricles communicated with each other*, there existing, in fact, but one cavity, the septum being wanting, with the exception of half an inch at the lower part, formed, apparently by a transverse development of the columnæ carneæ. The diameter of the opening between the ventricles was one and seven-eighths inches. The thickness of the walls of the ventricles was very nearly equal—five lines. The substance of the entire organ was flabby. . The circumference of the aorta, at its origin, was two and one-sixteenth inches—that of the pulmonary artery was one and five-eighths inches. One of the musculi papillares of the tricuspid valve had its origin at the posterior wall of the right ventricle lower than usual; valve of the foramen ovale natural; the mitral valves, normal, as well as the semilunar of the aorta and pulmonary artery.

Liver, large, deeply-colored; kidneys, firm—apparently natural. The abdominal organs healthy.

There are several points worthy of note in the history of this case. The subject of it lived exactly fourteen and a half years, and, from the time of his recovery from hooping cough in the spring of 1842, until he was attacked by pneumonia in the winter of 1848, appeared to be in good health. The cyanosed condition, although modifying his growth, and producing the peculiar phenomena connected with it, which have been mentioned, did not affect his spirits, or produce hebetude, but, on the contrary, his mind was active and capable of effort. When in the best state of health, as reported in the notes, his respiration presented perfect resonance on both sides, and was louder than usual. Without apparent pulmonary embarrassment, except when in exercise, yet the extreme engorgement to which the lungs could be subjected, was shown by the profuse hæmorrhage which occurred during the attack of hooping cough. From the date of the attack of pneumonia, a difficulty in his respiration exhibited itself, becoming more and more serious in proportion to the advancing disease of the pulmonary structure and its accompanying hypostasis, until, under this combination of local circumstances,

he succumbed after an unusually prolonged struggle. *Post-mortem* examination revealed a heart without the septum between the ventricles and patulous foramen ovale, with a marked disparity between the openings of the aorta and pulmonary artery, and disease of the lungs of the most serious nature.

The first aspect of the case from the resemblance to a single heart, might induce the belief that the cyanosis depended upon an equal commingling of venous and arterial blood in the general circulation ; this is the causation of the disease which has been adopted by several authorities. Untenable as this supposition has been shown to be by the occurrence of just such malformation in cases where no cyanosis existed, this case does not present this sole aberration ; an inequality existed, of a very anormal character, between the aorta and the pulmonary artery. By referring to the admirable paper of M. Bizot,* it will be found that the circumference of the opening of the aorta, at the age of fifteen years, in the male, is twenty-two and three-fourths lines, while the circumference of the opening of the pulmonary artery is twenty-three and three-fourths lines (the French measurements have been reduced to the English.) If we compare the measurements of the same openings, in the heart under consideration, with these, it will be seen that, for the aorta, there is given two and one-sixteenth inches, or twenty-four and three-fourth lines, which is two lines more than natural, and for the pulmonary artery there is given one and five-eighths inches, or nineteen and one-half lines, which is less than natural by four and one-fourth lines. In the normal state of the heart, the opening of the pulmonary artery exceeds that of the aorta by a line, while, in this case, it is less than the aorta orifice, the difference between them amounting to five and one-fourth lines, a little less than half an inch. It cannot be doubted, then, that in this slight enlargement on the one side, and decided contraction on the other, there existed a cause of embarrassment to the circulation, which places the case in the category of those produced by pulmonary difficulty. That the heart had difficulty in emptying itself, is apparent from the constant bellows murmur, which increased as disease of the structure of the lungs set in, and from the strong impulse perceptible on inspection, which accompanied the action of the organ. The walls of both ventricles exhibit a departure from the normal thickness, that of the left exceeding the natural measurement by a line, and that of the right augmented three lines ; or contrary to the usual structural arrangement, which gives four lines for the thickness of the wall of the left ventricle, and one and one-half for the right, they were nearly equal, thus more closely conforming to the idea of a single ventricular cavity. Whether this augmented thickness was congenital or acquired, cannot be determined, but, from the length and breadth of the organ corresponding to the standard measurement, we are induced to believe it was the former.

That difficulty in the pulmonary circulation did exist, although, in the early portion of the history of the case, not sufficiently marked to arrest

* Recherches sur le Cœur et le Système Arterial chez l'Homme, par J. Bizot (de Génève.) **Mémoires de la Société Médicale d'Observation, tom. i., Paris.**

attention, is clear from the ready occurrence of hæmorrhage first under the influence of hooping-cough, and then of pneumonia. The condition of the lungs as found, was in a great measure, the result of fixed hypostatic congestion, on which had engrafted itself the tubercular element.

We have been induced to report the case as confirmatory of the views entertained by our lamented fellow-member, Dr. Moreton Stillé, and so well sustained in his inaugural thesis on Cyanosis, published in the *American Journal of Medical Sciences.*

DR. WEST referred to a case of malformation of the heart and great vessels, reported by him, with some remarks upon cyanosis, to the Pathological Society of Philadelphia, and published among its Transactions, in the *Med. Examiner* for November, 1842.

The case of Dr. Carson confirmed the views which he had then taken in regard to the production of cyanosis.

The subject was a boy, eight years of age, who had exhibited no marked discoloration of the skin, until after an attack of pertussis when he was fifteen months old, and even subsequently to that period, his parents had at times noticed the entire disappearance of the blueness when he was sitting erect, and perfectly quiet.

He was suddenly seized with a violent convulsion, which was repeated on the third day afterwards, when he almost immediately expired. The heart in its substance, its coronary vessels, and in all its cavities, was found, after death, remarkably turgid with dark blood. The actual capacity of the right cavities was nearly double that of the left ones. The foramen ovale was closed. The two ventricles and the aorta communicated by a circular opening about half an inch in diameter. The aorta had an origin from each ventricle. The most interesting peculiarity presented by the specimen, was found in the condition of the pulmonary artery. This vessel was almost entirely occluded at its origin, which presented a small papillary eminence, through which a passage scarcely capable of admitting a large pin, was continued to the superior corner of the right ventricle. The supply of blood to the lungs was furnished by the ductus arteriosus, which was still open within the pulmonary artery. At the point where this duct opened, there existed a kind of valvular arrangement. The duct passed directly across from the aorta to the pulmonary artery, and at right angles to the course of the latter vessel, occasioning, necessarily, the blood which reached it, to branch off into two directly opposite currents. From this arrangement, it can readily be seen that the flow of blood from the right ventricle into the lungs must have been greatly retarded, the whole of it, nearly, having to pass at several right angles, after leaving the heart; as a consequence of this retarded movement of the blood, congestion of the whole venous system must necessarily have been produced, that of the skin exhibiting itself in the form of cyanosis.

The venæ cavæ, too, instead of entering the heart separately, were first united into a common trunk, which joined the auricle exactly at a right angle, a further impediment being thus offered to the return of the blood to the heart, of course assisting in the production of congestion throughout the whole venous system.

Dr. Condie said: I regard Dr. Carson's case as a very interesting and important one. The number of cyanotic persons who reach adult life, is by no means inconsiderable; many such cases are on record. The causes of cyanosis in children who perish, are often quite independent of cardiac lesions, and still more so in those in which the discoloration is only temporary. In many cases, the blueness disappears immediately after the occurrence of a free discharge from the bowels, and hence I am accustomed, when the skin is purplish, to give a purgative dose of castor oil. In very many cases of alleged or supposed overlying, I have no doubt that the child's death is attributable to imperfect expansion of the lungs. In the course of one year, I met with three such cases. In two of them, a coroner's inquest was held, and, on examination, the lungs were found to be in a state of atelectasis, quite in the fœtal condition, like the liver in texture, and sinking when thrown into water.

Dr. Carson remarked, that a cause of cyanosis, which had not been alluded to by the authorities on the subject, is congenital dropsy, when the mother is suffering from this affection at the period of her labor. He alluded to a case in which the mother was the subject of general dropsy at the time of parturition, and the child, when born, affected with universal watery infiltration, distending the limbs, the body, and the face, was in a deeply cyanosed condition. He regarded the cyanosis as depending upon a similar infiltration into the cellular tissue of the lungs, impeding respiration. As soon as this cause of venous congestion was removed by the subsequent administration of a purge, the cyanosis disappeared.

Dr. Condie said: I am enabled to confirm the remarks made in reference to the causes of cyanosis, by another case in point. I had a little patient affected with œdema of the lungs. As the attack advanced, its color became gradually more and more dusky, until it acquired a perfectly cyanotic hue. On examination of the body after death, no lesion having any connection with the symptoms was discovered, except general and complere œdema of both lungs, by which the expansion of the air cells and the pulmonary circulation were rendered impossible.

Art. XII.—*Observations on Dysentery:* by J. L. Abernethy, M. D., Concord, Tennessee.

What is dysentery? This interrogatory has, doubtless, propounded itself to the mind of every scientific member of our profession, yet the problem has never been explained, so as to be of practical importance to the medical fraternity, or of benefit to suffering humanity. The theories existing are too numerous to relate. Pathologists, however, har-

monize more in regard to its nature than its therapeutics. There is no disease in the whole catalogue of human complaints, that has received as varied a treatment, as the one under consideration. No two authors agree, in every respect; no two practitioners coincide in every particular; and many eminent ones occupy antagonistic positions.

They tell us on the other side of the Atlantic, that dysentery is "purely an inflammation," and the theory, in this indefinite condition, has been endorsed, to some degree, on this side of the "Great Waters." The expression of the above quotation, is very vague and meaningless. Gonorrhœa is "purely inflammation," and, so is gastritis, yet they differ wide in their pathology, etiology and therapeutics. In general terms, dysentery is "purely an inflammation;" but what kind of an inflammation is it?

There are two kinds of inflammation—common and specific. They differ in respect to the causation, and the tissue complicated. The causes of common inflammation are traceable, definite and direct, while the causes of specific inflammation are obscure, indefinite and indirect. The common phlogosis is mostly confined to deep-seated tissues, while the specific variety is generally situated on the skin and mucous membranes. Erysipelatous inflammation is the general nomenclature for inflammatory affections of a specific character, of the skin and mucous membranes.

Is dysentery a specific inflammation? Our answer is in the affirmative. Now for the proof. We will take up and examine the different phases of the disease, and see if the theory advanced can be sustained.

Dysentery is situated, or located, generally in the sigmoid flexure of the colon, or the adjacent intestine, below or above, more frequently below. Why is it that it always attacks this part in preference to any other portion of the alimentary canal, or any other canal with a mucous membrane? Let us make four divisions of the alimentary tube, and briefly examine their anatomical structure separately, and then compare the result. First, the œsophagus, is composed of three coats, layers or membranes. They occupy the following relation to each other: 1st mucous; 2d cellular; 3rd muscular. The first, or mucous membrane, has a basement membrane which is profusely supplied with bloodvessels and nerves. The second, or cellular coat, connects the muscular with the mucous membrane, and transmits the bloodvessels and nerves, from the muscular to the basement of the mucous membrane, consists of two layers; the fibres of the external are longitudinal, and those of the internal are circular. The stomach is of the same structure, excepting the addition of a fourth or serous coat. The small intestines, like the stomach, possess four membranes. The mucous membrane is longer than either of the other layers, and hence must be thrown into numerous folds, which are called valvulæ conniventes. They differ from other folds of mucous membrane in being fixed or permanent. The surface of the mucous membrane, is covered with a number of papillary projections, called villi, which impart a soft and velvety feeling to it. In the small intestines are found the follicles of Lieberkuhn, glands of Peyer and Brunner, and the solitary glands. Let us now descend to the large intestines, and examine their construction. Here we find a mu-

cous membrane, not unlike that of the small intestines, excepting the absence of the valvulæ conniventes and villi ; it is whiter, thicker and coarser than the mucous coat of the small intestines. The follicles or crypts are numerous. The cellular layer is the same as found elsewhere in the alimentary canal. The muscular membrane, like that of other portions of the intestines, consists of two fibres, longitudinal and circular. The serous coat is the same as found everywhere, only it has numerous folds of fat, which are called appendices epiploicæ.

We have briefly run over the anatomy of the alimentary tube, and find its structure pretty much the same, from the mouth to the anus. We have examined in vain, for a reason why dysentery should be located where it is. There is no rational or explicable reason revealed by anatomy, why it should be situated in the sigmoid flexure of the colon ; if there was, then there would be one argument less in favor of the theory advanced.

Pathologists, who call dysentery "purely an inflammation," inform us that there is none of that redness and softening, revealed by pathological investigation, that is so characteristic of gastritis and enteritis ; but that there is always more or less ulceration, and in many cases, the diseased bowel is an "irregular, confused and tattered mass of disorganization." Why is it that in enteritis or gastritis there is redness and softning, and in dysentery the bowel is ulcerated, and is often an "irregular, confused and tattered mass of disorganization ?" Pathologists explain why this difference in pathological lesions, and another argument is crushed.

The danger to be apprehended in typhoid fever, is peritonitis resulting from perforation of the intestines, and in this fever every organ and tissue of the system is in an unfavorable condition to take an inflammation, because the very elements, or, at least, the concomitants of inflammation, are below the normal standard ; yet, in dysentery, when, according to the common hypothesis, the elements of inflammation are in the excess, and the bowel ulcerated, and often an "irregular, confused and tattered mass of disorganization," extensive peritonitis rarely supervenes. Why is this ? Because inflammations differ in respect to the tissue diseased, and specific inflammations never attack serous membranes—have no affinity for them.

The most important and pathognomonic sign connected with the symptomatology of dysentery, are the hæmorrhagic discharges. Is hæmorrhage a natural consequence, and concomitant of inflammation of mucous membranes ? Most assuredly not. Inflammation of the mouth and œsophagus is not attended with hæmorrhage. Hæmatemesis is no indication of gastritis.

In enteritis, there are no hæmorrhagic evacuations. And all these diseased organs have their cellular membrane profusely supplied with bloodvessels and nerves, afferent and efferent, direct and indirect from the spinal cord. The bleeding, which is sometimes excessive and alarming, that occurs in dysentery, establishes beyond all cavil, the specific character of the disease.

The period of the year in which dysentery prevails, and commits its desolating ravages, indicates much in favor of the theory advocated.

All common inflammations are most rife in the cold, dreary and desolating winter, and the ever vacillating vernal months. They are more frequent at these periods, because their causes are more abundant, direct and definite, than at any of the other seasons of the year. The disease under consideration, makes its appearance in the latter part of summer, and generally disappears at the approach of cold weather. These facts are unquestionable evidence, that the cause or causes of dysentery are quite different from the etiology of common inflammations; and inflammations are classified, common or specific, according to their causes. Cold is one among the chief causes of inflammation, but it cannot produce dysentery, for then the disease would be mostly confined to the period when ordinary local phlegmasia exists. Imprudencies of every kind are a prolific source of common inflammations. It is true, the violation of the laws of nature is detrimental to health, and may hasten on, and aggravate the symptoms of any disease, epidemic or endemic; but to suppose that dysentery is dependent upon imprudencies of any description for its existence is the very height of supererogation. It is no respecter of persons. Its frequency is as great, in the affluent mansion, as in poverty's hovel. It is found as often, and its mortality is as great, on the mountain's top, where health-disseminating breezes waft, as along the river shore, or in the low and marshy lands, whose poisonous effluvia pervade the atmosphere.

The etiology of dysentery, like that of those terrible scourges, algide cholera and yellow fever, is much in obscurity. The chief cause—the predisposing cause—is essentially epidemic. It exists in the atmosphere, manufactured or brought about in some manner, by unnatural changes or conditions of the summer and autumnal seasons. The exciting causes are any and everything, that has a tendency to undermine the normal foundation of the whole system of organs of the human economy.

If dysentery was a common inflammation, venesection to decrease the volume of blood, mercury to diminish the amount of, and check the formation of fibrine, tartar emetic to reduce the action of the heart, and equalize the circulation, and numerous other antiphlogistic agents, would check the disease as quick as they would pleurisy. Will antiphlogistics cure common inflammation? They will. Do they cure dysentery? Would to God they could, but they can't! Experience has taught that we may bleed, mercurialize and antimonialize, and the tormina, tenesmus and hæmorrhage will continue unabated, if not, in many cases, aggravated. In many cases of a very acute nature, in a plethoric patient, the judicious employment of the lancet is of great advantage; but in a large majority of cases the prostration contraindicates it. Experience has taught, that blood-letting has no influence over the duration of the disease. Mercury as a sialagogue—not as a defibrinizing agent—is generally beneficial, because the secretion of the liver is invariably checked. Tartar emetic is of no advantage.

Anodynes and cathartics are the remedies most successfully and generally employed. Injections of nitrate of silver through long tubes are thought to do good. The treatment that is generally employed at this time, and the fatality of the disease, point distinctly to a specific

disease. But to tell what kind of treatment is best, is not the object of these "observations." That is reserved for a future paper.—*The Southern Jour. Med. and Physical Sciences*, for May, 1857.

ART. XIII.—*State Medicine in France and England.* (Concluded from the January No.)

France.—The existing organization of Councils of Hygiène and Public Salubrity, is based upon the decree of December, 1840, and of additional decrees, dating 1849 and 1851. In the chief city or town of every *arrondissement* in France a council of hygiène exists, and in every canton a committee of public health.

The Councils of Hygiène consist of not less than seven nor more than fifteen members, appointed for four years, one-half retiring every two years, but eligible for reëlection. The members are medical men, agriculturists, commercial men, proprietors, mayors, engineers, magistrates, and others who, by education and social position, are regarded as capable of judging of matters of hygiène. The medical elements of these councils are distributed as follows:—In a council consisting of ten members, there will be four doctors of medicine or surgery, two *pharmaciens*, and one *vétérinaire;* in a council of twelve members, there will be five doctors, three *pharmaciens*, and one *vétérinaire;* in a council of fifteen members, there will be six doctors, four *pharmaciens*, and two *vétérinaires*. The advice and assistance of civil and military engineers, official architects, and of the chiefs of the police departments, may be called for if required by the councils, although they may not be members thereof.

The really local character of these councils of health is evident from the fact that, out of 1742 members thereof, 1544 are resident in the chief towns of the several *arrondissements* and departments, while the remaining 198 reside at greater or less distances within the department or *arrondissement*, and include the most important and most distinguished of their inhabitants.

The proceedings of the several councils of the *arrondissements* are subjected to the consideration of the councils for the departments, whence they are annually transmitted, through the Central Council of Hygiène in Paris, to the Minister of Commerce.

Paris has its own special arrangements relative to public hygiène, known as the Council of Hygiène and Salubrity of the Department of the Seine. In each of its *arrondissements*, a commission of nine members, presided over by the mayor of the *arrondissements*, in the city, and by the sub-prefect in the suburban districts. Besides certain of the principal inhabitants, there shall always be, in each commission, at least two physicians, a *pharmacien*, a *vétérinaire*, an architect, and an engineer. These members are nominated by the prefect of police, from a list of candidates prepared by the mayor or sub-prefect of each *arron-*

dissement or rural district. The members are elected for six years, one-third going out every two years, the retiring members being eligible to reëlection.

These councils and commissions meet not less frequently than once a month, and more frequently if the public service require it. They shall point out to the prefect of police all causes of insalubrity existing in their districts, and shall give their advice on the means of their removal; and may be required to give their advice also to the departmental councils. They may be called upon to execute extraordinary measures for the suppression of epidemic disease.

Among the duties of the councils of hygiène are, cleansing of localities and habitations ; the adoption of measures to prevent the spread of epidemic and infectious maladies ; the extension of vaccination ; the organization and supply of medical assistance to the poor ; the means of improving the sanitary condition of industrial and agricultural populations ; the salubrity of factories, schools, hospitals, asylums, barracks, prisons, etc.; questions relating to foundlings ; the quality of food ; the improvement of public mineral waters, and the rendering these available to the poor ; the removal or suppression of dangerous or insalubrious establishments, or nuisances ; the supervision of public works, such as the construction of prisons, schools, canals, reservoirs, fountains, cemeteries, sewerage, etc., etc.

These councils shall also collect the statistics of mortality and its causes, together with the topography of each *arrondissement;* and shall regularly transmit all such documents to the prefect, who shall forward them to the Minister of Commerce.

A central council of hygiène and public health, at the seat of government, presides over all the other councils, and over medical affairs in general, and is charged with the examination of all questions on hygiène referred by these, or put before them by the Minister of Commerce and Agriculture. The members, seven in number, are nominated by the same functionary ; they consist of four doctors of medicine, a civil engineer, an architect, and a secretary, having a consultative voice. They may require also the attendance of one member respectively of the Military and Marine Councils of Hygiène, of the perpetual secretary of the Academy of Medicine, and of certain public functionaries—e. g., the chief of the police department, the architect, the chief of the post-office packet department, of the administration of tolls, etc., etc.

The *Criminal Code* (Art. 44) directs that, in the event of a violent death, or of one to the cause of which suspicion may attach, the procureur shall call in the aid of an *officier de santé*,* who shall submit to him a report upon the condition of the body, and the cause of death. In the *Civil Code* it is directed that when suspicion exists of violent death, interment shall not take place until a police officer, assisted by a doctor of medicine or surgery shall have prepared a *procès verbal* as to the state of the body, and other circumstances, such as the name, age, residence, etc., of the deceased. The choice of the medical officer is

* In the words of M. Devergie, "L'expression *officier de santé*, qualifié un homme apte a donner des soins en cas de maladie, et pas autre chose. On n'y entend pas un grade, un rang dans l'hierarchie médicale." (Tom. i. p. 4.)

left to the magistrate, who, although the matter is of equal weight in either case, may call upon a physician, being an *expert*, or upon an *officier de santé*, who in the medical hierarchy has no rank, or only the lowest. The education of the *officier de santé* is inferior to that of the physician or surgeon, his functions are restricted, surgical operations not being performed by him. The *officier de santé* seems, in fact, to occupy a position in some respects similar to our now obsolete "apothecaries," but the former does not practice pharmacy.

It must be supposed that the framers of the above cited clauses of the criminal and civil codes regarded the mere skill in making a technically-expressed report as being of higher value than the scientific qualifications of the individual to whom an important public duty was to be assigned by the magistrate; or they may have considered that a mere *officier de santé*, on the spot, in the communes or rural districts, would be more suitable for these investigations than a physician residing at a greater distance. The result, however, is that the opinion of an *expert* is frequently required in a subsequent stage of the proceedings; Article 43 of the Criminal Code giving the procureur the power to summon the assistance of whomsoever he may deem the most skilled in his profession.

The official reports of the *expert* must contain all the information which his experience shall enable him to suggest, relative to the presumed intention or premeditation of an alleged crime so far as inferences may be drawn from the appearances of the body, of wounds, or of the character of weapons found.

An autopsy is performed upon the authority of the procureur or his deputy. Exhumations are ordered only in extreme cases. The autopsy is to be performed without delay, and the authorities are required to see that the investigation is closely conducted, and that traces of crime are not thereby obliterated.

The reports of *experts* are of three kinds, viz.: judicial, administrative and estimative. The *judicial* or *official* have for their object the elucidation or discovery of an alleged crime. The *administrative* have reference to questions touching public health. The *estimative* refer to disputed remuneration. Besides these reports, the *expert* is frequently called on to give a simple certificate or statement of a fact, not in behalf of justice, or attested by an oath, but for inaccuracy of which he is, nevertheless, amenable to punishment.

We may represent, by an imaginary case, the mode of proceedings and position of the *expert* in France.

Supposing that a man is found dead in a room, the police requires the attendance of a doctor, or *officier de santé*, to attest the death, and to state the probable cause of death. Should any wounds or other indications of violence be apparent, these must be noted; and simply confining himself to the facts before him, the medical man must, in a *procès verbal*, state his suspicions, and indicate whether or not these require that the body be opened.

By a police ordinance of 1801, every medical man is required immediately to report to the police the particulars of every violent or accidental death to which he may have been summoned.

This primary report is forwarded by the police to the *procureur*, who, if he consider the suspicions of a crime to be sufficiently strong to call for further proceedings, appoints a *juge d'instruction*, who then nominates two physicians to inspect the body in the presence of either himself or his deputy. These physicians draw up an official report of what they observe, with their interpretation of the facts, and the conclusions thence to be drawn.

These two reports may, however, fail to explain with certainty the cause of death, or they may raise difficulties not previously contemplated. For the solution of these facts, the *juge d'instruction* shall charge two or more physicians with the duty of examining and advising upon the preceding reports; at the same time he shall submit to their consideration all other documents that may tend to throw light upon the inquiry. All these are digested and discussed in a *medico-legal consultation*, in which the last *experts* examine, in all their bearings, the facts and conclusions drawn by previous reporters, either confirming or reversing these. This "consultation" is not the subject of a special law, but is governed by those which rule the production of the "reports;" the several *experts* being convened by the *procureur*, or magistrate, in the regular form of summons for a report.

The medico-legal "consultations" may have two different sources—they may be demanded either by the accused, or by the judicial authorities. They are usually held before judgment is passed; but if the condemned have an opportunity of appeal, he may demand a "consultation" subsequently—sometimes with the effect of reversing the sentence. The strictest impartiality is enjoined upon the *experts*, whether engaged by the defense or the accused, with the proviso, that, in case of doubt, the benefit be given to the accused.

The *experts*, thus called in "consultation," do not necessarily reside in the locality where the alleged crime was committed, but may, if advisable or necessary, be summoned from a distance. Or it may happen in more grave cases, such as poisoning, assassination, etc., that there may be a difference of opinion among the *experts* who have investigated the affair on the spot. Under these circumstances, the magistrate addresses to the local *juge d'instruction* a *commission rogatoire*, by which he is authorized to require the opinion of certain *experts*, the choice of the latter being frequently left to his discretion. The limits of the "consultation" are much less restricted than are those of the "reports," which consist simply of a statement of facts and conclusions. In the consultation every fact must be discussed and fully commented upon, the commentary being strengthened by all suitable arguments, and illustrated by reference to the statements and opinions of authors. The names of the previous "reporters" are in all cases concealed from the consulting "experts," lest the authority or insignificance of a name should exert its undue influence upon their judgments. The several parts of the evidence are separately examined by each expert, previously to their joint consultation. The result of the consultation is delivered in four distinct parts:—1. The preamble, a simple enumeration of the points submitted for deliberation. 2. The exposition of facts, in which

all the circumstances and events are set forth in their exact order. 3. The discussion of the facts, which is the most difficult portion of the duty of the experts, requiring much sagacity and discrimination, and demanding research, experiment, scrutiny of proofs, and the collection of facts, for the guidance of the magistrate or judge. 4. The conclusion, in which the results must be briefly and clearly stated, together with the grounds of difference (if existing) from the conclusion of previous reporters.

It is apparent that the "expert" must possess not only practical skill, but should have also an extensive and ready acquaintance with the recorded facts and opinions of medico-legal writers. Their reports constitute the ground of action determining the prosecution or abandonment of legal proceedings; and in the event of trial, they are in the position of witnesses, although, as observed by M. Devergie, they are there in a false position, since, as representatives of science, they should not be called upon to advocate any particular interest. At the tribunals, the "experts" are required to depose to all that they have observed, and recorded in their reports; they have, moreover, to respond to questions put either by the judge, the jury, or the procureur. Their replies may give rise to further explanation, and the demand for additional evidence, and occasionally lead to controversy and discussion in the court between experts on the side of the prosecution and of the defence. To this M. Devergie very justly objects, and urges that the duty of the expert should be confined to the statement and the interpretation of facts and their legitimate conclusions, irrespective of any civil or criminal questions.

In order to meet these objections, M. Devergie suggests that there should be three grades of public official experts, liable to be called upon by the judges, mayors, justices of the peace, prefects and sub-prefects: the first to be attached to the *Cour d'Appel;* the second to the tribunals of each *arrondissements;* the third, to the local courts of the *cantons.*

It has also been proposed by M. Barse, that a college of experts should be established, to which reference should be made in all difficult cases, and in which institution he considers that society would have all the guarantees it could require for the unbiassed and exact application of science to all medico-legal questions, while experts themselves would acquire increased confidence in their conclusions, from the weight and dignity with which they would be invested as the reports of the college. M. Barse proposes that the institution be divided into two sections, chemical and medical; directed by président, vice-president, secretary, etc., chosen from its own body. Every investigation to be submitted to not less than three members of this college. The proceedings of the college to be published at regular intervals; the council having authority also to publish original articles by any members of the college.

The "reports" which have been mentioned as "administrative reports," are those which relate especially to matters affecting the public health. They call for as much care and exactness as is demanded for the preparation of criminal reports, inasmuch as the comfort or even the existence of many individuals or of a neighborhood may be involved therein. The duty, obviously, should not be undertaken by those who

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do not possess the requisite knowledge of chemistry and manufactures. In large towns, these functions are performed by the Councils of Hygiene and Salubrity.

England.—The duties and qualifications of the English "Officers of Health" are now generally known. They are of no light character; they are not restricted to any narrow or special field of sanitary quackery; but will demand a practical knowledge of medicine, and something more than a superficial acquaintance with collateral sciences. Sir B. Hall has well summed up these in the following remark to a deputation that waited upon him to learn his views on this subject:

"He desired the appointment of men of such high position and acknowledged qualification that, in case of a return of epidemic, they might meet as a general medical council for the whole metropolis, and draw out a system of sanitary regulations which, bearing the authority of their names, would be universally respected."

The combined weight of the experience and attainments of the Officers of Health would not only, in the time of danger referred to by Sir B. Hall, but at all times, constitute such a general medical council as shall be "universally respected." From the close connexion of this council with the central council of vestrymen, the necessity for other non-medical Boards of Health would cease. All their functions would be absorbed by the more efficient medical council.

The Boards of Health that have existed hitherto have been proved to have been powerless for the removal of causes of ill health; the law was indefinite, and the determination of nuisances prejudicial to public health depended upon the views of persons incompetent to form conclusions thereon, while decisions could be reversed by appeals to higher courts of judicature. The whole of our sanitary legislation has been a tissue of uncertainty and doubt. The new Metropolis Local Management Act removes much of the complicated machinery that stood in the way of the application of remedy, and by the formation of a corps of scientific and trained health officers, has paved the way for the attainment of certainty, and has given confidence in the beneficial operation of our sanitary regulations.

An association comprising all officers of health, and others interested in the advancement of sanitary and medico-legal science, would doubtless prove a powerful means to this end. We have now all the elements for the formation of a British society of experts, analogous to the college proposed by M. Barse. Experience is yet wanting to most of the newly-appointed officers of health, but as this is accumulated, if it be enlarged and corrected by comparison and discussion, the result must be that greater precision will rapidly be attained, and the public proportionately inspired with confidence in the opinions of those to whom they have entrusted those hygienic and medical affairs which alone can be safely confided to professional hands. It may be hoped that an association of this nature will ere long be in course of formation.*

Thus, besides the duties immediately of a sanitary nature, the medical

* The metropolitan medical officers of health have recently formed themselves into an association.

officers of health will eventually be looked up to as the most trustworthy aids to the coroner in the prosecution of medico-legal inquiries. Such assistance is absolutely needed in most law courts, as well as the coroners' court. The irregularities and oversights now too frequently occurring before the coroner's tribunal would, under such circumstances, be much less likely to occur. The progress that would be made in the diffusion and improvement of medico-legal science, by the greater certainty and facility that would be afforded for the detection of crime, would have the effect of deterring from its perpetration. It may seem superfluous further to allude to the need actually existing for improvement of the coroner's court in England. But a still more lamentable want of a medical jurist is to be found in Scotland. The coroner's court does not now, although it did anciently, exist in Scotland. The following is the practice of inquests in that portion of the United Kingdom, as stated by Mr. Craig; it is very different to the practice in England or Ireland, where direct application to the coroner may at once obtain an inquest, if there be ground of suspicion :

"1st. In all cases of sudden death, the district constable repairs to the place where it has occurred, collects information, and sends off a report immediately to the superintendent; and, in cases of rape, child murder, or concealment of pregnancy, the *constable* is to ascertain, with precision, all appearances exhibited, such as marks of feet, blood, etc., etc. If there be any circumstances calculated to raise ground of suspicion as to the death, such as external marks of violence, bruises, fractures, etc., the constable is to apply to the nearest medical man without delay, and, after an examination, is to obtain a certificate, and forward it immediately to the superintendent. In all cases of serious assault, and where death is likely to occur, the constable, without delay, procures the assistance of the nearest medical man, and sends off a report, as before described; and instructions are given as to what circumstances the medical man is to certify. Upon receiving such a report, it is laid by the superintendent before the procurator-fiscal of the county, who either acts upon his own responsibility, or occasionally takes a fresh precognition, and prepares a case to submit to the crown-agent, to whom the police reports are also frequently sent, and whose instructions are thereafter acted upon."

The "Procurators-Fiscal" are legal officers appointed by the Government to each county, their duties being to inquire into alleged crimes, to receive the reports of the police, and to determine whether prosecution shall be undertaken. In the event of a trial, the medical attendant of the person to whom violence or accident has occurred is required to give evidence and assist the court by his opinions. Should the condition of the person so injured be supposed to be such as shall endanger life, the procurator-fiscal may require that the police medical officer shall visit and examine into the state of the health of the person, in order that he may report whether he is in a fit state to "emit a declaration," or make a statement of the circumstances attendant on the accident or violence, to the sheriff, in order that important evidence may not be lost by the death of the injured.

Some change is evidently demanded where the initiation of an inquiry

involving questions of life or death is dependent upon the caprice or conceit of a parish constable. No stronger proof could be afforded of the importance of medical knowledge in the institution of inquiries touching the causes of death, than is afforded by its total absence in this instance beyond the Tweed. So protective to criminality is the existing order of things, that Mr. Craig, in his very striking pamphlet, informs us that it was a matter of discussion among the servants of a family whether it was better to have a bastard child in the town or in the country; they came to the conclusion that a child is more easily disposed of in towns. Surely it is high time that the practice of the English laws of coroner, registration, and medical officers of health, should be extended northward. Mr. Craig relates an instance also of the deaths of both child and mother after the obstetric administration of chloroform, and interment without inquiry. While we congratulate ourselves that such occurrences can scarcely take place in England, we regret not only the impunity it offers to crime or rashness in Scotland, but we also regret the confusion it necessarily introduces into the statistics of the results of any novel or hazardous line of practice.

The appointment of a Public Prosecutor has repeatedly been spoken of, and the proposition had so far assumed a definite form, that early in 1854, a bill was introduced into the House of Commons by Mr. Phillimore, for the express purpose of creating public officers under this name. The bill meanwhile was withdrawn, upon assurance given by the Attorney-General that he had been requested by the Government to prepare a measure having the same object. This bill, however, so far as we are aware, has not yet been brought under the notice of the legislature.* Its principal features were such as to promise much improvement upon the present mode of proceeding. The bill proposed to divide the country into districts, with a public prosecutor for each, whose functions would resemble those of the *Procureur Impérial* in France.

That the introduction of this functionary into our system of criminal jurisprudence would be in the highest degree advantageous, none but those who have a personal interest in existing arrangements can doubt. Aided by the counsel of officers of health, or by those eminent medical jurists which it is the honor of Great Britain to possess, the jurisdiction of civil and criminal courts would cease to furnish so many examples of prosecution carelessly conducted, evidence destroyed or overlooked, and guilt escaping.

From the preceding remarks, it will be seen that, in many of their most essential and most useful features, the new officers of health approximate to the German *physici*. The French system of the administration of hygiènic affairs, resembles the functions and powers of our English boards of vestrymen under the new Metropolitan Local Management Act. The extension of the principles of this legislation to other towns will complete the resemblance, and extend the operations of so beneficial a law.

* While writing these observations, the Report of the Select Committee of the House of Commons recommending the appointment of public prosecutors, is published. 'The Times,' May 29th.

As it is among the German *physici*, and among the medical members of the French Councils of Hygiène, that forensic medical science is sought and found, so it must eventually come to pass that the medical sanitary officers of England will constitute the body in which medico-legal science will be most assiduously and most successfully cultivated. The sanitary and the forensic duties of officers of health are closely associated—the qualifications which fit them for the performance of the one especially adapt them to the requirements of the other. As, by the new act, the British legislature is expressing a just appreciation of the scientific attainments of the medical profession, and regarding its members as the only trustworthy advisers in all questions affecting public health, it must of necessity follow that public opinion will concede the highest respect to the opinions given in courts of justice, by an experienced body of scientific *experts*, upon all medical questions involved in criminal or civil jurisprudence.—*Brit. and For. Med. Chir. Rev.*

ART. XIV.—*The Quarantine Convention at Philadelphia*, May, 1857.

WHILE the last sheets of the New Orleans Medical and Surgical Journal were passing through the press, late in June, *The Medical News and Library*, of Philadelphia, for June, came to hand, containing "Minutes of the Proceedings of the Quarantine Convention," from which it appears that "the two propositions" which have been already commented on in the first article of the present number of the N. O. Med. Jour., and which *passed unanimously* on the 14th of May, were reversed, or rather "*indefinitely postponed by an unanimous vote*" on the 16th or last day of the convention.

These weighty postulates are:

1. Yellow fever is not contagious, *per se.*

2. That it is only propagated in a foul or infectious atmosphere, analogous to that which gave it birth.

These "two propsitions having been adopted without discussion, the question on their adoption was, on motion of Dr. Hayward, of Boston, reconsidered." And lo! the facts, criteria, and generalizations of experimental philosophy which were *unanimously* inaugurated on the 14th of May, vanish before the *unanimous* vote of the 15th! *See-saw!* "a play among children, in which they sit on each end of a board and move alternately up and down."

The following propositions were at length adopted, though not unanimously:

1. There are certain diseases which may be introduced into a community by foul vessels and cargoes, and diseased crews and passengers.

2. These diseases are smallpox, and, under certain circumstances, typhus fever, cholera, and yellow fever.

3. When the latter diseases are introduced in this manner, their action is limited to individuals coming within their immediate influence, and cannot become epidemic or endemic, unless there exist in the community the circumstances which are calculated to produce such disease independent of the importation.

4. That the circumstances alluded to, consist in vitiated states of the atmosphere, from local causes, in connection with peculiar meteorological conditions.

5. Efficient sanitary measures, including quarantine, will, in most cases, prevent the introduction of these diseases, and may at any rate disarm them of their virulence, and prevent their extension, when introduced.

6. The present quarantine regulations, in operation in most of our States, are inefficient, and often prejudicial to the interests of the community.

7. Disease may be introduced; 1st, by a foul vessel, especially when proper measures are not taken to keep the hold free from stagnant and putrid bilge-water; and more particularly when there exist in the hold droppings or drainage from putrefiable matters which are allowed to penetrate and remain between the timbers of the ship. 2d. By cargoes consisting in whole or in part of rags, cotton or like porous substances, shipped from ports at which any malignant epidemic or endemic disease of a contagious or infectious character prevailed at the time when the vessel was loaded. 3d. By the filthy bedding, baggage, and clothing of immigrant passengers, particularly when these are crowded together in insufficient quarters, although the passengers themselves may be free from any actual disease. 4th. By the air that has been confined during the voyage in closely sealed and ill-ventilated holds. 5th. By squalid and diseased passengers landed and crowded together in unhealthy neighborhoods, or in small and ill-ventilated dwellings. 6th. By passengers and crews, who are actually laboring under, or infected with any positively contagious disease, their bedding, clothing, and baggage.

8. To prevent, therefore, the introduction of disease from the several causes enumerated, the necessity is apparent of providing a system by which all parts of a vessel may be ventilated during a voyage; and for the careful inspection of all vessels immediately upon their arrival, and before they are allowed to come up to the wharves of a city, for the landing of their passengers and discharge of their cargoes. No vessel, arriving between the 1st of May and the 1st of November, should, in fact, be admitted to a port, until her hold is freely and fully ventilated, nor until the bilge-water is entirely removed.

9. Provision should be made for the immediate landing of all those portions of the cargo of a vessel, and the baggage and clothing that may be judged capable of generating or communicating disease, and for their proper purification, at such places and under such regulations as

shall preclude all danger of their exerting a morbific influence, either immediately, or upon their subsequent admission into the city.

10. Provision should be made also for the immediate landing of all such persons from on board of vessels as they arrive, and their due and comfortable accommodation and treatment, until such time as they can be taken charge of, and properly cared for by their friends.

11. In the case of a ship-load of squalid passengers, or those strongly predisposed to disease, their clothing, beds, and other effects, should be at once subjected to a thorough ventilation and purification; and, upon their landing, adequate measures should be adopted to prevent them from crowding together in confined, unhealthy, and ill-ventilated dwellings and localities.

12. When a vessel arrives in a particularly foul condition, or on board of which disease has prevailed during the voyage, after her crew and passengers have been removed from her, she should be subjected to a thorough process of cleansing and purification, for which purpose it may be necessary to discharge her cargo at a safe distance from the city, and to allow only such portions of it to be conveyed there as are incapable of creating disease, the residue being subject to ventilation in such a manner as shall prevent it from suffering damage and all unavoidable deterioration.

13. The carrying out of these provisions should be intrusted to a single officer, with such assistants as may be required to facilitate him in the execution of his functions.

14. This officer should be a regular physician, of unquestionable talents and experience, and possessed of great decision and rectitude of character.

15. His compensation should be sufficiently ample to enable him to devote his entire attention and energies, throughout the year, to the duties of his office.

16. While the power of removing him for incompetency, neglect, or other adequate cause, should be vested in some competent tribunal, his appointment should be based solely upon his capacity to fulfil satisfactorily his incumbent duties, and his continuance in office made dependent upon his faithful and skilful discharge of those duties.

17. To this officer should be intrusted the sole and entire decision, under certain general provisions established by law, as to the treatment required in the case of each vessel that shall arrive, and of its cargo, crew and passengers, and to place it and these in a condition to prevent any danger of the introduction by them of disease, he, at the same time, being held to a strict accountability for the manner in which the discretionary power thus confided to him, is executed.

18. As in every community a Board of Health is necessary to watch over its sanitary condition, and to prevent or remove all domestic sources of disease, this body would appear to be the one in which the power of appointing, and the general supervision of the official conduct of the quarantine physician may, with the greatest propriety, be invested.

19. In order to procure a uniformity in quarantine regulations throughout the several ports of the United States, the assembling of

another, and probably several conventions similar to the present one, will be required.

20. To provide for the assembling of such a convention in 1858, it is suggested that the President, Vice-Presidents, and Secretaries of this convention, with a committee of one member from each State represented, be continued after our adjournment, as commissioners for the purpose of taking the necessary steps for the call of a convention next year; provided, however, that their powers shall cease immediately upon the assembling and organization of the convention of 1858.

21. A thorough examination should be made of all immigrants on their arrival, and if they are not protected against smallpox, they should be vaccinated.

22. We recommend that there should be attached to our Board of Health and quarantine establishments stations for minute meteorological observations and vaccine establishments; and that records of these be published at stated periods for the public benefit.

23. We advise the introduction of increased comforts for seamen and passengers, and the ventilation and purification of vessels by a more effectual method.

Signed, HENRY F. ASKEW,
Chairman of the Committee on Business.

On motion of Dr. Condie, it was

Resolved, That the vote of each delegation on the adoption of the Report of the Committee on Business be entered on the minutes.

The delegations voting in the affirmative were: Massachusetts—Boston Board of Health, Boston Port Physician (External Health), Boston Marine Hospital (Internal Health); Rhode Island—Providence Board of Health, Providence Medical Association; New York—Board of Health; New Jersey—Newark Board of Health, Camden Board of Health; Pennsylvania—Philadelphia Board of Health, Philadelphia Board of Trade, Philadelphia College of Physicians, Philadelphia County Medical Society; Delaware—Wilmington Board of Health, Medical Association of Wilmington; Maryland—Baltimore Board of Health, Baltimore Board of Trade, Baltimore Medical and Surgical Society, Baltimore Pathological Society. Those who voted in the negative were: Virginia—Norfolk Board of Health, and Norfolk City Council. The delegations from the Common Council of New Orleans and the New Orleans Board of Health reported each a tie vote.

"The *peculiar* meteorological conditions" which cause disease, as mentioned in the fourth proposition, are not pointed out. These assumed conditions, however true, have never been proved. All that is known of these "*peculiar* conditions" is that they sometimes coincide with and sometimes exist without epidemics.

In vain does the practitioner look in these resolutions for the practical methods of purification recognized as the essential part of quarantine, namely, disinfection, fumigation, etc. Even the *forty days* are not men-

tioned, much less determined. Perhaps the cargo of few vessels not loaded with the precious metals, would pay the expenses of forty days' detention and a thorough disinfection *secundum artem.*

The first and second propositions which enumerate the importable diseases as four, namely, smallpox, typhus, cholera, and yellow fever, ignore measles, scarlatina, ophthalmia, puerperal fever, whooping cough, dysentery, plague, leprosy, which latter are generally supposed to be quite as contagious as yellow fever, typbus, or cholera.

It is not necessary to allude to the fossilized truisms concerning "cleanliness, ventilation, filthy bedding, crowding, squalidity, baggage, drainage, bilge-water, rags, *cotton*, and like porous substances, bad air, and clothing that may generate or communicate disease," all of which have been denounced as nuisances *ad infinitum* ever since the beginning of the historic æra, and even perhaps ante-date mummification, monuments and Pharaonic pyramids.

The remaining space in this Journal will not permit of an extended examination of the postulates above mentioned, which being for the most part truisms, contain, nevertheless, a stratum of the incomprehensible. Take an example of both: The convention says (1) certain diseases may be imported; that is, smallpox, typhus, yellow fever, and cholera (2); and (4) "that when introduced in this manner, their action is limited to individuals coming within their immediate influence."

Did any one ever suppose that these diseases could exist otherwise than among *individuals?* or that an "influence" can act where it is not? But the convention says that these diseases thus introduced among *individuals*, "cannot become epidemic or endemic, unless there exist in the community the circumstances which are calculated to produce such disease independent of the importation."

"*Cannot* become epidemic or endemic!" Is not this an unwarranted assertion, *a petio principii?* Whether cholera or yellow fever be contagious or not, no one is certain from meteorology or any known atmospheric change that typhus, yellow fever and cholera "*cannot* become epidemic or endemic." Again, the convention asserts that these diseases cannot extend unless there exist in the community that which produces these diseases "*independent of importation.*"

All places not having "the peculiar meteorological conditions," which, by the way, are unknown, can have these diseases neither endemically nor epidemically, even though imported—an assertion which, coming from contagionists, reduces to zero the efficacy of quarantine laws. Places having, independently of importation, all the elements causing these diseases within themselves, can have very little use for quarantine.

Seeing that there are communities, not yet proclaimed, which are fully competent to produce these diseases, independently of importation, they must suffer from the same epidemically or endemically, always "limited to individuals," be they many or few. The locality which has the absolute and independent power to produce diseases "limited to individuals," may augment its list of cases, *ad infinitum*. Having found the essential cause (*vera causa*), to look for another, namely, importation, is unphilosophical, because unnecessary.

ART. XV.—*Syphilization.**

Two or three years ago a bold young French physician startled the grave deliberations of the *Patres Conscripti* in the French Academy of Medicine, by the announcement of his having discovered a new method of the treatment of syphilis, with which he proposed to extirpate that wide-spread malady from our nosology. Not only did Auzias Turenne aim at the cure of syphilis in persons already affected with the disease, but he shocked morality by the proposal to render individuals hitherto untainted with syphilis totally unsusceptible of the venereal virus. The French Academy of Medicine met, and an acrimonious discussion ensued. The moral and hygienic objections seem to have been those which were discanted upon; the facts do not seem to have been very carefully inquired into; no experiments were made to test the truth or falsehood of the new mode of treatment, and under the powerful influence of Ricord it was rejected by the Academy, in spite of the protest of Malgaigne and others against this summary decision. In this country, the subject seems to have excited very little interest. One or two journals briefly alluded to it in terms of unqualified condemnation, and the only notice of the controversy from an impartial point of view is given in "Ranking's Abstract of the Medical Sciences," p. 333, vol. xvi., by Dr. Radcliffe. Since then, with the exception of two papers by Victor de Méric, in the "Lancet" for 1853, no notice has been taken of the subject, and the medical public in this country seem to regard the question as finally settled by the fiat of the French Academy. Not so, however, our brethren on the continent. In Norway, in Sweden, in Turin, and elsewhere, the bold empiricism of Auzias Turenne has been carefully put to the only test capable of deciding the question at issue—viz., that of experiment. Not content with merely declaiming against syphilization as unheard-of and unjustifiable, Professor Boeck in Christiana, Danielson in Bergen, Carlsson in Stockholm, and Sperino in Turin, have for some years past been engaged in a series of careful experiments and observations to determine the truth or fallacy of Turenne's

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* This article, so extraordinary in its facts and doctrines, consists of brief extracts, which, however, will be sufficient to develop the fundamental, and it may be added, almost incredible principles recently deduced from numerous experiments made by a gentleman of distinguished reputation and reputed competency.—ED.

practice. It is plain that experiment alone can decide the question; theory here is but of little avail, and would be of no more use in disproving stubborn facts—if such they really be—than if it were directed against the efficacy of mercury in primary syphilis, or of quinine as an antidote to ague. The French Academy seems to have rejected the practice of Turenne without putting it to the proof; indeed, as we observed before, the moral question alone was tried, and found wanting, while the actual facts seem hardly to have been discussed at all.

Auzias Turenne, a young French physician, commenced, about the year 1844, a series of experiments, with the view of testing the validity of John Hunter's doctrines of the non-communicability of syphilis to the lower animals. After many experiments and several failures, he succeeded in producing in monkeys inoculated with chancre matter a disease which had all the characteristics of true chancre. This was at first admitted in the French Academy, but at a later period was denied. However this may be, it is quite certain that a contagious disease was communicated to the poor animals, and that from these it was transferred to rabbits, cats, and horses. The malady was again from these returned by inoculation to the human species, the first trials in this regard having been made by Dr. Robert Weltz, of Würzburg, on his own person. On four separate occasions, Dr. Weltz succeeded in producing an unmistakable chancre on his own person, by inoculation from animals, and this was acknowledged even by Ricord.

While Auzias Turenne was thus engaged in researches on the transmission of syphilis to animals, he became aware of the curious fact, that each succeeding chancre produced by inoculation became less and less in each animal, until at length a period arrived when inoculation apparently lost all its power, and no chancres or sores of any kind followed the application of the venereal virus. From these facts he drew the inference, that by prolonged inoculation with the syphilitic poison, a constitutional state or diathesis was at length produced in which the system was no longer capable of being affected by syphilis. This condition he terms "syphilization," and upon this asserted discovery all the subsequent experiments and peculiar mode of treatment are based. Auzias Turenne and his followers contend that by such a process of prolonged inoculation the system becomes protected for the future against the venereal poison, just as an individual who has had small-pox cannot take the disease a second time. To obtain perfect syphilization or immunity, the individual must undergo constitutional syphilis; but he must be forced rapidly through this disease by repeated inoculations, in order that it may not injure the constitution.

The abortive experiments of Diday in 1849 require but little notice. He proposed to inoculate with blood drawn from a person laboring under tertiary syphilitic symptoms, so as to prevent, as he imagined, the poison from entering into the constitution at all. Although this proposal was apparently based on one of Ricord's supposed "laws"—viz., that constitutional syphilis never affects an individual but once in his lifetime, it was also in direct contradiction with Ricord's positive opinion, "that tertiary syphilis could not be communicated by the parent to the child."

After a series of experiments, Auzias Turenne's doctrines were laid before the French Academy of Medicine (November 18th) in 1850; and, as might be expected, opinions so novel and so startling met with the most vehement opposition. Turenne had, it seems, only recently commenced at that time his experiments on syphilization in the human subject; he had, therefore, few or no data for the support of his opinions, and he not only proposed to employ syphilization for the primary and secondary forms of venereal diseases, but suggested the use of this treatment as a prophylactic against the contagion of syphilis in persons as yet untainted with that malady. It was upon this latter point that the discussion mainly turned, and here the indignation of his opponents was unbounded at the audacity and immorality of such a proposal. We cannot deny that they had right on their side; the proposal was not only immoral, for the disease is one to which an individual voluntarily subjects himself by a lapse from the rules of morality, but it was also most injudicious to subject a perfectly healthy person to the danger of incurring a malady from which he might never again be able to free himself. The true mode of determining the question—that of experiment, carefully conducted and often repeated—was not adopted, and an application by Turenne for leave to prosecute his researches in the Hôpital St. Lazare was negatived by the Commission. Hitherto, not being permitted to pursue his investigations in a hospital, he had only experimented on a few cases in private practice, and these were necessarily too few and too scanty in the details to be implicitly relied upon. The real question at issue, that of the reality or non-reality of syphilization, was left untouched. Malgaigne, Depaul, and others, in vain protested against the sweeping condemnation of these proposals before the truth or falsehood of the doctrine had been determined by experiment; the great influence of Ricord and his partisans prevailed, and the proposals by Auzias Turenne were unequivocally condemned. Shortly after, a strong case appeared in favor of the opponents of syphilization, in the person of a Dr. L——, who had allowed himself to be inoculated to produce syphilization, and was now covered with venereal sores. While matters thus proceeded in Paris most unfavorably for the advocates of syphilization, the question was being investigated on a large scale, and in a more complete manner, by Sperino of Turin. This physician had great advantages for the prosecution of his researches, as he was attached to the Syphilicoma, or Venereal Hospital, of the city of Turin. He had long remarked that large suppurating buboes healed more rapidly when their syphilitic character was tested according to Ricord's plan, by inoculation of the surrounding parts; and, moreover, that when the primary chancres were large and obstinate, the inguinal buboes were smaller and less freely developed. The longer the local disease lasted, the less chance there seemed to be of constitutional syphilis. Sperino made his first report on the subject to the Medico-Chirurgical Academy of Turin on the 23d of May, 1851. In this report he gives the full details of fifty-two cases treated by him in the Syphilicoma of that city. If Sperino was not the first to employ syphilization for the cure of venereal disease in the human subject, he at all events first performed a regular series of experiments and observations to test the truth or fallacy of Turenne's doctrines.

"The subjects of M. Sperino's experiments were fifty-two hospital patients, all prostitutes, and all suffering from aggravated forms of primary or secondary syphilis. The virus was taken from the person syphilized, or from a comrade—from the first if possible. The inoculations were repeated once or twice a week in three or four distinct places, usually in the abdomen. The time required for the establishment of the artificial chancres was from two to three days. The effects of the second inoculations were less serious than the first, the third than the second, the fourth than the third, and so on, until the virus ceased to produce any effect whatsoever; contemporaneously with which epoch all former ulcers had healed, and buboes, recent nodular enlargement of bones, and cutaneous stains or blotches, had either disappeared altogether, or were rapidly going away."

The virus also, which made no impression at that time, was found to retain all its virulence when tried on an unprotected person.*

Sperino's observations were confirmed by similar results obtained by Dr. Gamberini at Bologna, and by Gulligo at Florence. The report of the Commission appointed in this case, as at Paris, was unfavorable, but it did not extend to the prohibition of further experiments, and Sperino has ever since followed up this treatment in the hospital under his charge. In 1853 he published a detailed account of ninety-six cases of syphilization in a bulky volume of 903 pages. * * * *

Not only are certain cases ill fitted for syphilization from previous mercurial treatment, but the state of health of the patient must be taken into consideration before submitting him to this prolonged and painful treatment. Dr. Boeck advises that we should not syphilize when any inflammatory diathesis exists in the system, as in such cases the artificial chancres may take on a malignant action. Habitual spirit drinkers, and persons of very weakly constitution, should not be subjected to this treatment. The bowels should be regulated, and the digestive organs should be brought into good order; but it is not necessary to enforce any strict rule of diet. In the hospitals of Bergen and Christiania, the ordinary full diet of the hospital was always allowed. With regard to obtainining the patient's consent to the treatment, no difficulty seems to be found either in the Scandinavian or the Italian hospitals. Both Sperino and Dr. Boeck mention the readiness with which patients submitted to, and even sought for the mode of cure which they had seen to be so successful in their fellow sufferers.

Various methods of inoculating the venereal virus have been adopted by the advocates of this system. Auzias Turenne at first kept up a succession of single chancres; while Sperino made three or four separate inoculations at once, and repeated these two or three times in the week. After having in this way reached the number of twenty-four or thirty inoculations in all, he found that the chancres last produced were exceedingly small, and he then diminished the intervals, and made more inoculations at each sitting. He found that the first chancres were deeper, larger, and more inflamed than those which succeeded them; and that

* See Dr. Radcliffe's Report on Surgery; Ranking's Abstract, vol. xvi., p. 334.

by diminishing the intervals and increasing the number of inoculations, the earliest chancres visibly diminished, and were less painful and inflamed. To test this still further, Sperino ventured upon as many as sixty inoculations at once upon the same individual; but the result obtained was that *immunity* to further inoculation set in before the syphilitic symptoms were cured, and relapses of the disease frequently ensued. He therefore returned to his former plan, and now inoculates for six to ten chancres at each sitting. While these chancres are progressing, it is neither necessary nor advisable to inoculate afresh, nor should this be done until the former chancres are developed. Should the chancres be developed too freely, and threaten to produce active inflammation, or to extend as phagedænic sores, he checks their progress by inoculating afresh at shorter intervals.

The practice of Dr. Boeck differs very little from that of Sperino. At first, afraid of producing too serious an impression upon the system, Dr. Boeck inoculated for two chancres only every six days, selecting that period of time because he found from experience, that it required about five days to produce induration in a chancre; although he does not, as we have already seen, consider this latter circumstance absolutely essential. Subsequently he has shortened his intervals to three days, and increased the number of inoculations to eight or ten. Less time is thus required to produce immunity, but Dr. Boeck has a wholesome distrust of those cases which are pushed too rapidly through their course of syphilization.

With regard to the most favorable points in the body for inoculation, Sperino placed his punctures on the lower part of the abdomen, while Dr. Boeck prefers inoculating on the arms and thighs. Accompanying each of his observations in the volume before us is a lithographed outline plate of the human figure, with the points of inoculation, and the date of each; while lines drawn from the arms to the thighs enable us to follow the transpositions of the virus from one chancre to another. By this simple figure it is easy to trace the progress of the treatment, to see the number of inoculations at each sitting, and the source from which they are derived. * * * * * * * *

We think that the advocates of syphilization have established a claim on the profession to a fair trial of their system. It is evident that its employment is not fraught with danger, as is the case with so many remedies proposed from time to time; and the investigation of the subject seems to open up a new field for the further study of one of the most malignant and most lasting and destructive poisons that affect the human frame.—*Brit. and For. Med. Chir. Rev.* for April, 1857.

Professsor Boeck on Syphilization.—If it be evident, as I think it is, that the remedies hitherto used against syphilis are uncertain, and even pernicious, then it is not only allowable, it is our duty, to try the new one that is offered to us. To me the only question was—in what cases syphilization might be used. I have already mentioned that I always thought *prophylactic* syphilization to be an absurdity. Therefore, I shall not dwell any longer on it. The question is—whether syphilization ought to be used in all cases where syphilis exists? This

question is easily answered. I cannot predicate with certainty if all those who get primary syphilis will get constitutional disease. The simple chancre is not in general accompanied by any constitutional affection. The Hunterian one is certainly a consequence of a constitutional syphilis, but we may easily deceive ourselves in respect to the induration. Therefore, I never use syphilization where there is merely primary syphilis. It is not until the constitutional symptoms have appeared that I consider this method allowable, for then I am convinced that I do not introduce anything into the organism but what is there before. I cannot double a malady already present. So I am quite certain not to do any harm to the patient.

This may be the fit place for mentioning shortly how I produce syphilization. Without any other preparation than a bath, or in my private practice even without this, I apply on each thigh, and on each arm, or on the sides only, three inoculations in every one of those places, with matter taken from a primary ulcer, or from an artificially produced one in a person who has been syphilized. I choose the first named places for those who are lying in the hospital, but I inoculate the sides of those who, during syphilization, are going out attending to their business. However, I must add, that I never confine my inoculations exclusively to the sides. If they do not prove effectual there, I apply them on the thighs, on which we shall almost always find the ulcers to be larger, deeper, and of a longer duration. Therefore, I think this place the best, and never fail inoculating there. Every third day I inoculate anew. As long as the last inoculations produce pustules, I take the matter from these. In some cases I have always tried to take the virus from the first made inoculations, thinking to find there the strongest matter, and thereby, perhaps, be able to achieve the cure in less time; but the cases in which the treatment has been accomplished in thi manner are so few, that I should not venture to draw deductions fr them. In syphilized children, I have only applied one inoculation each thigh, and generally also on each side, every third day, or perh at longer intervals. The ulcerations produced in this manner ma occasionally become phagedænic in grown-up persons. Many woun may be united into one, and form a large ulcerating surface. Thi however, does not signify in the least, provided the treatment be c tinued without being alarmed. The inoculations are a certain rem against the phagedænic ulceration. In children, the ulcers are gener so small as not to cause any inconvenience. It is only in cases wh have been mercurialized before that I have sometimes seen the artific ulcerations enlarge, yet never to an alarming degree.

In some instances the inoculated person becomes proof to one sort virus. I then take the matter for inoculation from another, preferri a case which has had a different origin; this then proves effectual. But sometimes they become proof to this also, and I then seek for a third source; and thus I go on as long as any matter at all will operate.

Moreover, it is worth noticing that immunity does not occur, and the syphilitic phenomena do not vanish, earlier in children than in grown-up persons. The time necessary to produce immunity is about three months. However, it dep upon the number of inoculations that may be em-

ployed—upon the symptoms that have taken place; and in children it seems to depend upon their syphilis having been acquired or inherited. The quality of the virus even may not be without influence. When immunity is attained, the syphilitic phenomena generally vanish. However, should this not be the case, it should cause no uneasiness, as they will certainly vanish within a short time, without any remedy being used.

It is not uncommonly the case, that during syphilization a new eruption takes place; but this always exhibits symptoms of the same nature as were observed at the beginning of the process of syphilization. These eruptions need not cause any anxiety. The operator may quietly go on inoculating, and things will proceed as in other cases. One phenomena that I have often seen develop itself under syphilization is iritis. This has been very intense in some cases; but I do not make it the subject of any special treatment, either antiphlogistic or derivative, and the result has hitherto been always favorable.

The syphilitic poison does not run a rapid course, as was known a long time before we heard anything of syphilization. We often see the constitutional symptoms not to show themselves until after some months. Therefore, there is nothing astonishing in the fact, that the curative results of inoculation do not show themselves until after some time.

But if even by syphilization alone we cannot affect a cure in all cases, it is, nevertheless, an indispensable remedy. Patients who have been nearly destroyed by syphilis and mercury may be restored by it to health. The cases belonging to this class may present very different aspects, and the effect of syphilization on them, of course, also different. I therefore think the best way to give my view of the matter is to arrange them in separate groups, viz.:

1st, The early constitutional cases recently treated with mercury, in which the same symptoms have reappeared. Here syphilization will, in [illegible]ne cases, produce as certain an effect as in cases not treated before, [illegible]t we oftener find some irregularity. The phenomena vanish and [illegible]urn again. That which I have said takes place in the individuals [illegible]ot mercurialized is repeated here; namely, it is always the same forms [illegible]hich existed at the beginning of the syphilization that return.

2d, The affection may be still confined to the cutaneous system and [illegible]e pituitous membranes, but the tubercular forms may be predominant, [illegible]erations on mucous membranes may go deeper, or the affection may [illegible]n the subcutaneous areolar tissue. We may even have the *tubercu-serpigenous syphilide.** These affections are more slowly acted upon. [illegible]e reason for this may partly be found in the fact, that these forms [illegible]e often rather of old standing. Mercurial treatment, iodine, etc., have [illegible]een used against them, and we also often see bad forms show themselves [illegible]ithin a year after the primary affection. This seems to depend on [illegible]ndividual constitution, for it often has no relation to the quantity of mercury, or the care taken of the patient during the treatment.

If, in these cases, new eruptions come out during syphilization, we shall always find them to be more superficial than the earlier affection, if even they have the same form as that which existed at the beginning

* Radesyge.

of the syphilization treatment. It happens in these cases, especially, that the inoculations, after a small number of them have been made, do not produce any effect, then we must give iodine, after which we shall again have larger pustules and ulcers.

3d, Affections of the osseous system. Here syphilization hardly ever seems to produce any effect. But when iodine has been used earlier, producing results of only a short duration, then syphilization, united with iodine, seems to relieve the nocturnal pains more certainly; but osseous tumors remain unaltered by syphilization.

4th, Affections of the nervous system—hyperæsthesia and incomplete and complete paralysis—may occur: First, in combination with other syphilitic symptoms, and in those cases I have seen them diminish under the influence of syphilization. Secondly, they may be the only phenomena left as the result of the mercurials used against the primary syphilis; and, under these circumstances, we see little or no effect from syphilization. However, I must observe, that all the cases of that sort which I have hitherto treated have been of old standing, and have for a long time been treated with iodine, etc.

5th, Mental maladies, finally, may be the result of the mercurial treatment. I have had no opportunity of employing syphilization in such cases, but I consider it well worth trying. The idea that syphilization should be the last refuge, seems to be quite as if quina should not be given in the beginning of an intermittent, but that the system should be first injured by different other medicines, and then quina given afterwards.

As the result of the great many observations made with syphilization, it seems sufficiently proved that the syphilitic virus heals constitutional syphilis, and that it cures the malady without doing any harm whatever to the organism. On the contrary, we see that the uneasiness, the rheumatic pains which often accompany constitutional syphilis, vanish under continued inoculations.

The immediate effect of syphilization upon the organism is generally also very favorable, but there are some who have thought that it may, perhaps, operate perniciously in future time. To this I have only to say, that I can show many individuals discharged from hospital more than three years ago, who have remained in uninterrupted good health, and that in not one of the persons treated in this manner, can I point out any unfortunate result whatever, which could be ascribed to syphilization.

If, finally, I were to comprehend, in a few words, my opinion about syphilization used as a curative remedy, I should say—

1. Syphilization is undoubtedly useful against syphilis; it is the only certain remedy that we know, and it is not pernicious to the organism: mercury, therefore, ought to be banished as a curative remedy.

2. Syphilization is not so certainly useful against *mercurialized syphilis*, but it ought always to be tried. It often does cure it entirely, and it at least does not fail to do some good in the greatest number of cases.

3. The application of syphilization against other maladies than syphilis ought to be tried with the greatest possible care and exact observation.—*Glasgow Med. Jour.*, April, 1857; from *Dublin Quarterly*.

ART. XVI.—*Indigenous Races of the Earth.* (See catalogue.)

THE *Indigenous Races* is an important work upon Anthropology in what point of view so ever it may be considered. It bears upon its face evidences of extensive research and independence of thought upon the sciences of Ethnology, Palæontology, Archæology, Philology, Craniology, Natural History, etc. A work of this kind was much needed in this Republic. The great works which have been published, or are in course of publication on the continent of Europe, at enormous expense, unfolding the progress of discovery in the East during the current century, have not been republished in this country.

Mr. Gliddon, as a lecturer and writer, deserves much commendation for his industry, zeal and ability, in bringing some of the above named topics prominently before the American public in advance of the two elaborate works with which he has within the last three years been identified as an author, namely, "*Types of Mankind,*" and "*Indigenous Races.*" The exuberant pictorial illustrations which characterize these works are by a fair hand whose name is not in the title pages: Mrs. Gliddon should be first in the "Types," first in the "Races," as well as first in the hearts of the grateful readers of these volumes. It is of her the publishers of the *Races* say, "that the accomplished lady to whose single pencil four-fifths of the entire series of illustrations herein contained are due, spontaneously volunteered, and for two years employed it." If the dread of being called a learned woman can be surmounted, let the publishers ornament their next edition with a new frontispiece, namely, her portrait.

The reader will see by referring to the catalogue of this journal that the "Indigenous Races," the joint production of MM. Maury, Pulszky, Meigs, Nott, and Gliddon, is a large work upon diversified topics of high import to the student of humanity—of humanity not as displayed in its external transactions in cabinets and battle fields. These phases of man's past history, the poet and the historian, appropriate to themselves in a fashion somewhat illusory, while they pass by his internal history, his personal and domestic characteristics, his language, mental frame, dominant ideas, cranial and anatomical conformation, varieties, geographical distribution, climatic influences, arts, sciences, literature, monuments, inscriptions, customs, chronology, religion, etc.

At present it is proposed to enter neither upon the examination of the merits nor upon the disputable points of this work. A book of this kind may be invaluable for its facts, documents, and researches, even though its opinions, hypotheses, theories, and explanations, may be unsatisfactory, inconclusive, or even erroneous. For example, Prichard's

work on the Physical history of Man, though written to prove his Unity, fails to prove the latter, yet it is just as good for its anatomical and ethnographical *tableaux* and details as if it had proved this postulate. It is not intended to deny the unity because this able author failed to establish it beyond question upon physical principles. In like manner the authors of the "Types of Mankind," and of the "Indigenous Races," may fail to carry complete conviction to the minds of many readers in favor of the opposite doctrine, namely, that of the Diversity of Races, but they have, nevertheless, accumulated in these elaborate works a vast amount of valuable knowledge.

The chronology of these works is, or will be, perhaps, the stumbling block in the way of their acceptance and approval, owing to a seeming antithesis to sacred writings. The latter, however, do not teach this science any more than physic, anæsthesia, chemistry, geology, electrical telegraphing, astronomy, etc. Neither the date of the creation of the world nor that of the creation of man has been fixed, much less referred to and practised upon as points of departure in sacred history. It appears that even the birth of Christ was neither received nor referred to as a chronological æra or method of computing time, until in the sixth century afterwards, (527) when a Roman Monk, Dionysius the Little, introduced it into use. The numerous chronologers who have undertaken to establish the æra of the creation from sacred history, having therein no satisfactory data, have arrived at the most contradictory conclusions. The Eastern or Greek Church differs more than 1,500 years from the Western Churches in reckoning the æra of the creation: according to the former, the creation took place B. C. 5,509; accordding to Usher, 4,004. Besides these dates three hundred contradictory ones have been advanced by Christians and Hebrews.

The learned authors of "*Types and Races*" have disinterred significant data from the cinders of long extinguished centuries, the *debris* of former worlds. They have gathered inscriptions, documents and skulls from the dark, dank and mouldering realm of the dead—from the frontiers of the remote and mysterious past, and having added thereto their individual experiences and opinions, not omitting those of contemporary investigators, they may well claim an impartial and friendly hearing from all parties, not excepting dissenting critics who can indite difficulties easier than explain them—propound problems easier than solve them—raise objections easier than make laborious explorations and scientific contributions.

The publishers' announcement in the "*Indigenous Races*" reveals a fact which must be very puzzling to individuals who sneer at scientific

labor in which money is not the all-powerful motive—a fact which reproaches professors enjoying large emoluments, who neither contribute anything themselves to the cause of science nor encourage others in this behalf, namely, "In justice to the labors of the authors and contributors, we will state, that no monetary compensation is equal to the pains bestowed by each upon his part; and several of the above have kindly furnished their quota without the remotest pecuniary object."

Without expressing any opinion concerning the validity of the unitarian or diversitarian dogma of ethnologists, it may not be improper to enumerate some of the views of the ablest advocate of the unity, namely, the late Dr. Prichard, already alluded to, who spent thirty-seven years of his valuable life in writing five octavo volumes upon this question.

Of the hybridity argument, a fundamental one, Dr. Prichard gives this exposition, namely, "distinct species do not freely intermix their breed, and hybrid plants and animals do not propagate their kind beyond at most a very few generations, and no real hybrid races are perpetuated; but mixed breeds descended from the most distinct races of men are remarkably prolific. The inference is obvious. If the mixed propagation of men does not obey the same laws which universally govern the breeding of hybrids, the mixed breeds of men are not really hybrid, and the original tribes from which they descend must be considered as varieties of the same species."—(i. 375.)

Dr. Prichard quotes and adopts authorities to show that the brains and the minds of the negro and the white are equal.—(ii. 352.)

He maintains that the Indians who inhabit dense, humid forests, are comparatively white, while in dry, open places, they are dark and even black like negroes, instancing the California Indians, who, according to him, are "the almost exact counterparts of the slaves of the negro plantations in the West Indies." These white Indians are found neither in the Delta of the Mississippi nor in the Peninsula of Florida, where the forests are unusually dense and humid. In 1836 about 1,200 Indians from Florida passed through New Orleans, but to the writer they appeared no whiter than Northern Indians.

Dr. Prichard's fifth volume is devoted chiefly to native races of America. His conclusions are: "All the different races belong to one family: there is nothing in the physical structure of these races tending to prove an original diversity from the rest of mankind: that the same is true of their psychology."

As Dr. Prichard's unitarian arguments, both philological and pyschological, are based in a great degree upon the Delaware Indian tribe, the following statement, never before published, is submitted, that the

reader may judge for himself as to the validity of these arguments and the authenticity of the facts to which they relate:

In 1818 I visited the Rev. Mr. Heckewelder, long the pastor, teacher, friend and ruler of the *Lenni Lenape*, or *Delaware Indians.* These Indians and their preacher, Mr. H. of the United Brethren Church, lived in a village on the Tuscarawas river a few miles below New Philadelphia, in the State of Ohio. Of the christianization of these Indians glowing accounts had been given. But Mr. H. informed me, that among these people, his parishioners, there was but one man who would not get drunk when an opportunity offered. This sober one, called John, appeared to possess but little intellect, and his associates still less. He recounted to me some of the superstitions which prevailed among the Delawares before their adoption of Christianity. These Indians, who lived in a double row or single street consisting of miserable huts hardly fit for cattle, were, to all appearance, extremely stupid, dirty, lazy creatures. They lounged in the sun, a common practice as I found on subsequent visits, and presented altogether a type of mind and manners of a low grade.

The Rev. Mr. Heckewelder, who devoted his almost entire life to the improvement of these Indians, showed me a spelling-book, a grammar, and portions of the Gospels in the Delaware language, the results of his own benevolent labor.

This gentleman of blessed memory and much learning among the Moravian missionaries, was born in England. He became a missionary in 1771. He settled on the Muskingum or Tuscarawas river in 1797. In 1819 he published a history of the Indian nations who once inhabited Pennsylvania, and during the following year, a narrative of the Moravian mission among the Delaware Indians from 1740 to 1808. He died in 1823, aged 79.

Dr. Prichard in his Physical History of Mankind (v. 299, Lond., 1847,) relies much on the conversion of these Indians as proving their psychological unity with the white race. He also attaches much importance to the Delaware language as proving the unity of races, this language being, according to him, the parent tongue of the two thousand Indian languages of America. This pretended unity running through all these languages is not so extraordinary, however, as his account of the Delaware language itself, in which he finds elegance and a perfection surpassed by neither the ancient nor modern tongues. The Delaware grammar is, according to him, full of art, perfect in its scientific structure, rich and infinitely varied in idioms and roots, and in the inflection of its pronouns, in new combination of nouns, multiform in the conjugation of its verbs, etc. Now all history and common sense show

that a perfectly philosophical grammar with a rich and polished language is only found in the highest degree of learning and civilization, attainable in a nation or by a people. The Delawares would be the last people among whom these attainments could rationally be expected.

Dr. Prichard appears to have derived his information concerning the perfection of the Delaware language from an eminent scholar of Philadelphia, the late Mr. Du Ponceau, who doubtlessly got *his* information from Mr. Heckewelder, the amiable and devoted missionary. The latter isolated from the world, might, in twenty years, more or less, have made a grammar for these lazy, unthinking, stolid creatures. Dr. Prichard's philological argument in favor of the unity of the American races, based on this Delaware type of a perfect grammar was doubtlessly the work of Mr. Heckewelder, Mr. Du Ponceau, or some other scholar, and its applications to "the known grammatical analogy of the American languages," (v. 350) afford examples of credulity and inconclusive reasoning unworthy of such great names, and unfit to be transmitted to posterity as true.

Lo! the poor Indian! "At an early period of the existence of Harvard University," says the late Dr. Warren, "our pious ancestors placed there a number of young Indians. These, after a short time of study, uniformerly disappeared, and I believe the name of Caleb Chees-Chaumuch stands on the college catalogue, a solitary instance of a native regularly graduated."

Dr. Prichard quotes from the late Mr. Gallatin of New York, a statement showing that the most remarkable example of Indian improvement known, is that of the Cherokees, and is owing to the introduction of negro slavery among them, there being 1,200 slaves among 15,000 Indians.

In conclusion, it may be asked where is the Delaware tribe now? In a Congressional Document, published by authority in 1845, the following account of the Delaware tribe is given by R. W. Cummins, Indian Agent: "*Christian Indians.*—This is a small band of mixed Indians, Munsees, and a few Delawares. They number 208. They are located on the Delaware land, on the north bank of the Kanzas river, eight or ten miles above its junction. The Missionary Society of Moravians have established a mission among these people." Thus it appears that these Delawares including their fusions with other tribes, numbering but 208, are like the other Indians who come in contact with the whites, hastening to extinction. Civilization is virtually for the unintellectual, prowling, savage hunter, but another word for that irksome, stagnant, non-progressive, deadly torpor, *ennui*, which, including its remedy, whisky, has contributed much as well as bullets and bayonets, to reduce, in two centuries, the red race from sixteen millions (Catlin) to a few hundred thousands.—EDITOR.

Editor's Office.—Notices

JULY, 1857.

Communication from James E. Smith, M. D.

BOOKS AND PAMPHLETS RECEIVED.

Indigenous Races of the Earth; or, New Chapters of Ethnological Inquiry; including Monographs on Special Departments of Philology, Iconography, Cranioscopy, Palæontology, Pathology, Archæology, Comparative Geography, and Natural History: Contributed by Alfred Maury, Bibliothécaire de l'Institut de France; Secrétaire général de la Société de Géographie de Paris; Membre de la Société Impériale des Antiquaires de France, des Académies de Bordeaux et de Caen, des Académies et Sociétés d'Archéologie de Belgique, de Picardie, de Madrid, des Sociétés Asiatique et Médico-Psychologique de Paris, de la Société d'Histoire de la Suisse-Romande et de la Société de Littérature Néerlandaise de Leyde; Chevalier de l'Ordre de la Légion d'Honneur, etc., etc., etc.; Francis Pulszky, de Luboez and Cselfalva, Fellow of the Hungarian Academy; Correspondent of the Instituto di Corrispondenza Archeologica di Roma; late Under Secretary of State in Hungary, etc., etc., etc.; J. Aitken Meigs, M. D., Librarian of the Academy of Natural Sciences of Philadelphia, etc., etc., etc.; presenting fresh Investigations, Documents, and Materials; by the Editors, J. C. Nott, M. D., Mobile, Ala., Geo. R. Gliddon, formerly U. S. Consul at Cairo; authors of "Types of Mankind." Pp. 656, large 8vo.; with numerous illustrations. Philadelphia: J. B. Lippincott & Co.; London: Trübner & Co. 1857. From **Mr. J. C. Morgan, bookseller, Exchange Place, N. O.**

On the Diseases of Women, including Diseases of Pregnancy and Childbed: By Fleetwood Churchill, M. D., M. R. I. A., author of "Diseases of Infants and Children," "Theory and Practice of Midwifery;" Vice-President and Fellow of the King and Queen's College of Physicians in Ireland; one of the Presidents of the Obstetrical Society; Professor of Midwifery, with Diseases of Women and Children, in the King and Queen's College of Physicians in Ireland; Associate Member of the College of Physicians of Philadelphia, U. S., etc., etc.: a new edition, revised by the author; with notes and additions by D. Francis Condie, M. D., Fellow of the College of Physicians of Philadelphia, etc., etc. Pp. 768, 8vo.; with illustrations. Philadelphia: Blanchard & Lea. 1857. From Mr. **J. B. Steel, bookseller, 60 Camp street, N. O.**

Medical Education: By Henry Hartshorne, M. D., Professor of the theory and practice of Medicine, etc. Pp. 14. Phila. 1857. From the author.

State Woman's Hospital, N. Y.; 3 documents: from J. Marion Sims, M. D., attending **Surgeon. 1857.**

Vaporiferous Bath Apparatus, invented by Dr. L. H. Lefebvre. Pp. 12. New Orleans. **1856. From the author.**

Knowledge the only Guide to Action: By Professor J. H. Watters, M. D. Pp. 16. St. Louis. 1857.

The Transactions of the Academy of Science of St. Louis, (Missouri.) Vol. I. Pp. 92. 8vo.; with illustrative plates. St. Louis. 1857. From the Academy.

Proceedings of the Academy of Natural Sciences of Philadelphia.

A Manual of Examinations upon Anatomy, Physiology, Surgery, Practice of Medicine, Chemistry, Obstetrics, Materia Medica, Pharmacy, and Therapeutics: especially designed for Students of Medicine, to which is added a Medical Formulary: By J. L. Ludlow, M. D., A. M., Fellow of the College of Physicians; Member of the American Medical Association, and one of the Consulting Physicians to the Philadelphia Hospital, etc., etc.; a new edition thoroughly revised and much enlarged, with 370 illustrations. Pp. 816, royal 12mo. Philadelphia: Blanchard & Lea. 1857. **From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.**

The Annual Report of the Physician-in-Chief of the Marine Hospital at Quarantine. Pp. **63. Albany. 1857. From E. Harris, M. D.**

Catalogue of Human Crania, in the Collection of the Academy of Natural Sciences of Philadelphia, based on the third edition of Dr. Morton's "Catalogue of Skulls," etc.: By J. Aitken Meigs, M. D., etc. Pp. 112, 8vo.; with numerous **engravings. Philadelphia. 1857. From the Academy.**

Act of Incorporation, and List of Members of the Acad. Nat. Sci. of Phila. Pp. 38. *Donations, etc.*, to the same. Pp. 36. *Proceedings* of the same. Pp. 100. From the Academy.
Quinine in Fever: By Isaac Casselberry, Evansville, Ind. Pp. 13.

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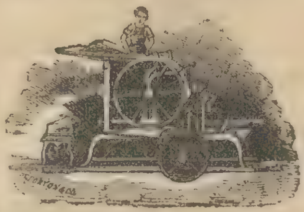

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THE NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL

FOR SEPTEMBER, 1857.

ORIGINAL COMMUNICATIONS.

ART I.—*Practical Remarks on the Evidences of Pregnancy:* By DR. J. E. THOMPSON, Roseville, Arkansas.

No subject in the broad field of medical science, has stronger claims upon the medical adviser for their careful observance, than the evidences of pregnancy; as well from its vast importance as from the difficulty so frequently attending its investigation.

No greater responsibility can be placed upon him, than to be called on to evince the existence or non-existence of pregnancy; that peace of mind, domestic happiness, character, property, nay, even life itself, may be sacrificed by inaccuracy in his diagnosis. The medical man is frequently called upon by his patient, who is anxious merely to become acquainted with her real situation, when a failure or refusal to give a decided and correct answer, engenders in her mind dissatisfaction and want of confidence. How much is his embarrassment increased, when called upon to decide those cases where private character or public justice is at stake, and in which, from their very nature, must be expected nought but concealment and misrepresentation. Every practitioner knows, that difficulties in this respect do, and by no means very unfrequently, meet us in our practice. Hence, the importance of thoroughly investigating and perfectly understanding the phenomena of pregnancy.

Pregnancy is the state of a female, who, after conception, contains within her the fecund of a new being; beginning simultaneously with conception and terminating in parturition, which generally takes place in forty weeks, or 280 days.

Pregnancy may be estimated as existing under four general heads: 1st. Simple pregnancy; 2d. Compound pregnancy; 3d. Complicated pregnancy; and 4th. Pseudo-pregnancy.

Each one of these forms, to a greater or lesser degree, presents different symptoms or evidences of its existence. The evidences of pregnancy considered generally are, 1, presumptive evidences; 2, sensible evidences.

I. PRESUMPTIVE EVIDENCES:

The presumptive signs are those which induce us to suspect or presume that the female is pregnant: amounting merely to the patient's history of her own case. Although these evidences are quite numerous, they are very uncertain, and of minor importance to the accoucheur in forming his diagnosis. The presumptive evidences may be divided into general and local: General, from all the changes experienced by the female in the regular and natural progress of her functions, in her habits, her peculiar inclinations and tastes, the effects of which are marked particularly by the paleness of the countenance, and certain alteration in the figure, which belongs only to pregnant females, but which the most experienced eye cannot always detect. The local signs are, suppression of the menses, enlargement and development of the abdomen, discoloration of the areölæ, swelling of the mammæ, etc., etc.

The human frame is composed of a variety of organs supplied with nerves enabling it to perform a double function: first, one by which it maintains its connection with the external world, receives impressions, and performs certain voluntary and involuntary motions and actions; and, secondly, one which unites the parts of the animal frame, constituting it a whole. This last quality, with which every part of the animal organism is more or less endowed, is called *sympathy*. The nearer animals approach to the most perfect state of existence, the more acute will be their sympathies. On the other hand, in cold blooded animals, where each separate organism possesses a greater degree of individual vitality, there is much less sympathy between the different organs and functions of the body; and of course, we find a less perfect general organization. Blumenbach explains this phenomenon by "the proportion the brain bears in size to that of the nerves proceeding from it," which in the inferior animals is much smaller than in the higher classes.

Sympathy has a general and a particular operation; general, when the whole organism sympathises with one organ; particular, when only one part of the whole organism sympathises with another. This sympathetic connection is much more observable in some organs than in others; and it is in many purely latent, until developed by a variety of causes, such as newly acquired or periodic functions, and altered or diseased actions. Sympathy between organs may be mediate or immediate; mediate, when this peculiar connection exists directly between

two organs: immediate, when it exists through the intervention of a third. The uterus furnishes us with examples of these different kinds of sympathy, which become developed in a most striking manner in pregnancy, and those diseases most likely to be compounded with it; they may, therefore, with justice be termed the *sympathetic signs of pregnancy.*

The sympathy existing between almost all organs is reciprocal; that this is the case with the uterus will be apparent, when we recollect how frequently it sympathises with other organs, as well as they with it. Of this fact we have abundant proof in the frequency of the occurrence of abortion from vesical, alimentary, or even mental excitement, which indicates the necessity of attending to this phenomenon as a matter of paramount importance in the treatment of such cases.

The first symptom or sign indicating pregnancy, is observable immediately on the occurrence of conception. A peculiar sensation is experienced similar to a rigor or spasm, followed by a feeling of indescribable pleasure, which, however, is not of long continuance, and is succeeded by a sense of languor and depression. However, sensitive females frequently experience similar sensations after each coitus, and yet have not become pregnant. Conception is frequently accompanied by a general excitement of the system, with increased vascular action, such as quick pulse, heat of the surface, fever, perhaps of a hectic form with periodic exacerbations, attended by exhaustion, debility and emaciation. This state, however, seldom occurs, only in females of a peculiarly nervous temperament. These symptoms, however, may be produced by derangement of the catamenial discharge, and cannot be looked upon as positive. Pains in the pelvic and lumbar regions may occur immediately on the occurrence of pregnancy, or a few days after, when they depend upon sympathy. These pains may also be present in retained or difficult menstruation, as well as in pelvic and abdominal tumors. The sympathetic connection existing between the stomach and uterus, causing diminished or depraved appetite, cardialgia, dyspepsia, nausea and vomiting, commonly denominated *morning sickness*, though a very usual concomitant, is very far from being a certain sign of pregnancy. It is frequently entirely wanting until the quickening period, and sometimes never occurs till near the close of gestation. It also occurs in delayed menstruation, and in many other diseases. "It may, however, be considered as adding to the general testimony in proof of this condition." (Dewees on Females, p. 163, 8th edition.)

Absence of the menstrual discharge is also regarded as an important datum in diagnosticating pregnancy. Some consider this as conclusive

evidence, relying wholly upon it; while others look upon it as quite inconclusive. Dr. Denman says, (System of Midwifery, vol. 1, p. 270,) "I have not met with a single instance of any female continuing to menstruate when she was pregnant." This is rather remarkable. How so scientific and practical an accoucheur as was Dr. Denman, should, in the course of many years of extensive practice, *never have met with a single instance* of the catamenial discharge appearing during pregnancy, is surprising. Every intelligent practitioner knows that the occurrence of the menstrual discharge is of so common an occurrence, that its absence cannot be regarded as conclusive evidence of uterine pregnancy. However, in connection with other evidences, it may be regarded as good evidence. Dr. Dewees says: "Few signs of pregnancy are more equivocal than the suppression of the menses, and should never be relied on, farther than that sign is entitled to."—(Diseases of Females, 8th edit., p. 158.) Again, on page 161, the same author remarks, "I well know a number of women who habitually menstruate during pregnancy, until a certain period; but when that time arrives, menstruation ceases: several have menstruated until the second or third month, others longer, and two until the seventh month; the last two were mother and daughter. I am certain there was no mistake in the cases to which I now refer. First, the menses were regular in their returns; not suffering the slightest derangement from the impregnated condition of the uterus; secondly, from two to five days were employed for their completion; thirdly, the evacuation differed in no respect from the discharges in ordinary, except they thought it less abundant; fourthly, there were no coagula in any one of these discharges; consequently, it could not be the common blood, or the blood of hæmorrhagy; fifthly, in the two protracted cases, the quantity discharged regularly diminshed after the fourth month, a circumstance, not perhaps difficult to explain." Heberden in his Commentaries (chap. 43,) reports a case of this character. Dr. Blundell says, "I have repeatedly met cases of pregnancy in which the catamenia have continued to flow during the first two or three months."—(London Lancet for July 18th, 1828.) Dr. Ramsbotham (System of Obstet. by Keating, p. 83,) remarks: "The suppression of the catamenia has been dwelt upon from time immemorial as a most valuable sign: considered by itself alone, it would prove a most fallacious one, for there is no practitioner of any experience but could adduce many instances of this discharge continuing on for several months in a pregnant female." Dr. Maygrier, of Paris, in his Midwifery Illustrated, (Third edit. by Doane, p. 78–9,) remarks: "The suppression of the menses, however, is so far from being a certain sign of pregnancy, that

it is not always a rational sign. Besides, its constant and regular appearance does not prove that the female is not pregnant, since numerous examples show that females, although pregnant, have menstruated, at least during the early months of gestation." Deventer mentions a case in which the female never menstruated unless during the period of utero-gestation. (Midwifery, cap. 15.) Dr. Kennedy has observed similar cases. (Obstet. Auscultation, p. 12.) Dr. J. E. Taylor in his edition of Kennedy's Obstetrics, (p. 12,) remarks: "Two cases have occurred under my notice, where the females had had six children and never had their periods, except as a sign of their being pregnant during nursing. Three cases were especially noticed, where pregnancy existed while this discharge continued—two were at the fourth month, and the third in the third month. Two of these cases ceased at the fifth month, and were afterwards attended by myself, the other case I did not attend, but repeatedly saw her prior to her accouchement."

Dr. Blundell remarks in his Lecture on Menstruation, (Lancet for July 18th, 1828,) "That we must not conclude that a woman is not pregnant merely because she menstruates: for although doubts may be raised respecting the continuance of the catamenia during the whole term of gestation, yet I have repeatedly met with cases of pregnancy, in which the catamenia continued to flow during the first two or three months; indeed this, notwithstanding Dr. Denman's assertion to the contrary, may, I think, be looked upon as by no means very uncommon." If there be any occasions where physicians ought to be more prudent, and to make more reflections upon their prognostics of important cases, it is on those occasions which concern their judgment as to conceptions and females being pregnant, to avoid the great accidents and misfortunes which they cause, who are too precipitate in this respect, and without a certain knowledge. The faults committed through too much fear at such times, are in some measure excusable and pardonable; but not those caused by temerity and consummate ignorance, which are incomparably greater, and altogether unpardonable. There are multitudes of defenseless females who have been caused to miscarry by medicines, under the pretense that they were not pregnant, which are only so many murders perpetrated by heartless knaves under the garb of science. Many instances are upon record, the results of ignorance and rashness; one of which is recorded by Mauriceau, (Book 1, p. 17:) "In 1666, in Paris, a miserable example of this kind in a woman hanged, and afterwards publicly dissected near the Kitchen Court of the Louvre, who was four months gone with child, notwithstanding the report of the persons who visited her, by the judge's order, before her

execution, who affirmed that she was not pregnant. They were deceived because the woman had her '*monthly courses.*' Whereupon," adds Mauriceau, "it is not fit to be too confident, forasmuch as there are many with child who *have their courses;* and I have known some who have had them all the time of their great belly till the fifth or sixth month, which happens according to the woman's being more or less sanguine, though the greatest number usually have them not; but there are few general rules which may not be sometimes excepted against." A case is related by Baudelocque, of a French countess, imprisoned during the French revolution, who was accused of carrying on a treasonable correspondence with her husband, an emigrant; she was ordered to be examined by two of the best midwives in Paris, and they declared her not pregnant. She was accordingly guillotined, and her body taken to the School of Anatomy, where it was opened by Baudelocque, who found twins in the fifth month of pregnancy."—(Rigby's Syst. of Midwifery, p. 98, Am. Edit.)

It very frequently occurs that the catamenia is arrested for a considerable time, when there are no other evidences of bad health. I have known two females, the one having borne seven children, and never menstruated since the period of her marriage; and the other nine, and during the period of having the last four, did not menstruate. They enjoyed remarkably good health during the whole time, except the usual phenomena of pregnancy. Dr. Denman says, (Syst. Mid. p. 272,) "I have known many instances of married women who had ceased to menstruate for several months, independently of any disease when they were not pregnant." Rondelet speaks of a female who had borne twelve children, and Joubert of another who had eighteen, and never menstruated. Dr. Ramsbotham says: "It is common in newly married females, upon the excitement in the genitive organs consequent upon their new condition, or the congestion occurring in the uterus as a result of too frequent copulation, to have a temporary catamenial suppression."—(Syst. Obstet. by Keating, p. 83.) It is not by any means uncommon for a female to become pregnant whilst nursing, when no menstrual discharge has been observed after her former confinement; when of course this evidence is of no avail. Dr. Conquest remarks in his evidence in the House of Lords on the Gardiner Peerage case: "I think the evidence connected with menstruation so uncertain, that, as I have before stated, I found my calculations more in the circumstances of quickening. Women are constantly falling pregnant whilst performing the duties of nursing, when they do not menstruate, and should not menstruate."

From the foregoing, we infer that suppression of the menstrual discharge is not at all times attendant upon pregnancy. When it is not associated with other signs unmistakable in their character, as an evidence, it is worth but little to the accoucheur in performing his diagnosis. Suppression of the catamenial discharge may also be caused from a mechanical obstruction, as imperforate hymen, or adhesion of the walls of the vagina, when they are otherwise naturally secreted; from ovarian or general dropsy, hydatids of the uterus as well as enlargement of the same organ, chlorosis, and chronic diseases attended with debility, as phthisis.

The occurrence of sympathetic pains and uneasiness in the mammæ about the third month, sometimes, however, at an earlier or later period, is also regarded as a symptom of pregnancy. There is however, but little dependence to be placed upon this circumstance, as the connection between the uterine organs and the mammæ is so strong, that they sympathise in almost all the morbid affections and altered states to which the former are liable. We have a remarkable instance of this in cancer of the uterus; also in amenorrhœa and dysmenorrhœa. There are sometimes sympathies in which the heart and lungs, and frequently the liver are engaged; these, however, are of rare occurrence. Those which exist between the uterus and the brain, either with or without the intervention of the stomach, are very frequently met with: such as vertigo, headache, drowsiness and convulsions. There is also a state of great anxiety and apprehension in the pregnant female for her safety, and much solicitude for the result of her pregnancy. Extreme mental irritability also occurs, rendering her who was amiable and good-tempered a torment to herself, and actually shunned and avoided by her friends. Antipathies, vitiated appetites, and desires or longings are also developed, produced by the brain's sypathising with a vitiated state of the stomach, depending upon irritation of the uterus. These appetites are sometimes of so unnatural a character, as to border on insanity. A case is recorded where a lady's longings became so preposterous, as to prompt her to breakfast upon a certain baker's shoulder in the neighborhood, or her child would be deformed, i. e., born with but one shoulder. These symptoms, although observed in pregnancy, are frequently noticed in other diseases, particularly in chlorosis, where they arise from the same cause, i. e., irritation of the uterus. They are of no importance in a diagnostic point of view. Numbness and cramps of the lower extremities are also enumerated as symptoms of pregnancy. Constipation of the bowels is very common in this state, the reverse state also sometimes occurs. But these symptoms occur from so many

different causes, remote from pregnancy, that they are of but little consequence. Ptyalism sometimes occurs, though in a moderate degree. "But," according to Dr. Dewees, "when it does happen, it very decidedly points out this condition; I do not remember to have observed this symptom from any other state in the uterus."—(Dewees on Females, p. 169.) Though, ptyalism may occur when it is not produced by pregnancy or any other known cause. Dr. Dewees speaks of two females who became salivated, who were not pregnant, whose salivation could not be traced to any particular cause, unless from some particular condition of the stomach, as much nausea attended. Dr. Dewees speaks of a *frothy saliva* which is frequently spit up by pregnant females. He remarks: "This saliva is very tenacious, and very difficult to deliver from the mouth; it is extremely white and a little frothy, and when discharged upon the floor, assumes a round shape, and about the size of a shilling piece—hence the expression, that the person is 'spitting English shillings, or cotton;' and so far as I have remarked, it is almost a certain sign of pregnancy."—(Dewees on Females, p. 169.) The state of the bladder is looked upon as furnishing important facts in diagnosticating pregnancy. Stranguary, incontinence, and suppression of urine, have been alternately looked upon as symptoms of the existence of pregnancy. Stranguary may occur in the early months from sympathy between the uterus and bladder; but it is more frequently noticed in advanced pregnancies, when it is caused by mechanical pressure of the enlarged uterus. Incontinence of urine occurs in the latter months of gestation, and is more troublesome during involuntary actions of the abdominal muscles, as in coughing or sneezing, especially when the patient is in an erect position. Dr. Taylor remarks, "I have repeatedly seen this as a symptom during the second and third months, accompanied with pain in passing water, and a discharge from the vagina; many females have from this sign decided that they were pregnant." Of all the signs deduced from the state of the bladder, and the most dangerous to the female when it occurs, which fortunately, however, is seldom, is that of suppression of the urine, as it is, if not produced, frequently kept up by retroversion of the uterus. This, however, seldom occurs until about the third or fourth month of pregnancy, and when combined with other symptoms of retroversion, may be looked upon as strong evidence of pregnancy at that period.

At the end of the fourth month, or at the beginning of the fifth after impregnation, the female is made sensible, for the first time, of a peculiar fluttering movement low in the abdomen, attended by a feeling of agitation, syncope or an hysteric paroxyism, which is termed *quicken-*

ing. Some writers, among whom are Dr. Morley, contend that quickening is caused by the uterus suddenly rising out of the pelvis; while others, among whom are Drs. Denman, Maygrier, Dewees, Ramsbotham and others, regard it as being the first muscular action of the fœtus perceptible to the mother. At the fourth month, the uterus rises above the lower pelvis, with its base two or three fingers' breadth above the region of the pubis: this probably gives rise to the movements of the fœtus, being stronger at this particular time, and first observable by the mother. At this period, those distressing symptoms which have been attendant frequently, from the moment of impregnation, now partially subside, and the female is seldom troubled any more during the remaining period of gestation. This motion depends in a greater or lesser degree upon the strength of the fœtus, the quantity of liquor amnii, and the sensibility of the uterus itself. The period of quickening may perhaps occur earlier in females of a particular nervous sensibility. In first pregnancies, this movement is frequently attended with considerable alarm, especially in irritable females, on the part of the patient; small quantities of blood are frequently discharged in connection with the occurrence of quickening, and are looked upon by many as a corroboration of the existence of pregnancy. This period is frequently looked forward to with a great deal of anxiety by those who are either doubtful as to their being pregnant, or being really so, suffer much from the early symptoms attending gestation.

As the symptoms we have already enumerated may, many of them, be absent, or if present, in such a contradictory manner, as to give rise to doubts and perplexity in the minds of both patient and accoucheur. In this embarrassing state of affairs, we must wait till the period of quickening, as the only means to set things right. Unfortunately, however, we are again thrown into doubts and increased perplexity. For every day's experience goes to show that this symptom is not a less fallible criterion than many of those already mentioned; as again and again we meet with cases where females, who are not pregnant, assert, with such a semblance of veracity as could only arise from conviction, that they have experienced this sensation, and that it was attended with the usual sypmptoms of weakness and fainting. It is quite extraordinary, how females, who have borne several children, will insist on their having felt these motions, and the impossibility of their being mistaken, after having felt these sensations so frequently before. In some females, the motion of quickening is so obscure, as not to occasion any distress; and where the ascent of the uterus is very gradual, it is often not felt at all. Dr. Denman remarks: (System of Midwifery, p.

130, 6th edit.) "The motion of the child is so obscure in some women, or such little attention is paid to it, that it is not perceived or regarded, and in others so indistinct, as to be confounded with various other sensations. In cases, therefore, of supposed or mistaken pregnancy, women often fancy that they feel the motion of the child; or if the child has died in utero, when there is, after birth, the fullest proof that it must have ceased to live for a long time." "I am aware," says Dr. Conquest in his evidence on Report of Proceedings of the House of Lords on the claims of the Barony of Gardiner, (p. 106,) "the circumstance of quickening is not always to be relied on; many old women who are *determined* to have children when they marry late in life, and many single women who wish *not to have children*, are very apt to be deceived.

Dr. Blundell says: "I know an instance of a lady, possessing more than average intelligence, the mother of twelve children, who was led by certain abdominal movements into an erroneous persuasion that she was again pregnant; for spasms of the abdominal muscles, and flutterings of the bowels, may now and then be mistaken for the movements of the child." Some females possess the very extraordinary power of simulating the fœtal movements by the action of the abdominal muscles so exactly, that the most experienced and intelligent accoucheur might be deceived, and led to pronounce opinions that might entail upon him volumes of calumny and regret.

A case is recorded by Blundell, of a female who possessed considerable skill of this kind, and exhibited her talents in London for hire; she was visited by Lowden, Mackenzie, and other celebrated accoucheurs of the day, and, upon becoming satisfied that the uterus was not enlarged, they examined the abdomen, and were all agreed that the movements were so exactly analogous to those of a fœtus, that no distinction could be clearly made, and had there been no internal examination made, judging from this abdominal action alone, they should have been well satisfied, that the woman was in the fourth or fifth month of utero-gestation.

In 1854, a female sixty years of age came to me, declaring she was pregnant, and six months gone. She asserted that she had quickened about four weeks previous, and could now distinctly feel the movements of the child. Upon placing my hand upon the abdomen, and after considerable pressure, I could feel motions exactly similar to that of a fœtus. She was much emaciated, and had been troubled with dyspepsia for years. Upon examining the uterus *per vaginam*, I discovered a polypus about the size of a goose-egg attached to the uterus: the motions

proved to be the aörtic pulsations. She could not be convinced that she was not pregnant, till I extracted the polypus. Dr. Kennedy refers to a similar case: (Obstet. Auscul., p. 27, by Taylor,) "I saw a very remarkable case of this kind in company with Dr. Lee and Mr. Herron. The subject was much emaciated, having labored for some time under obstinate hysteria, attended with aggravated dyspeptic symptoms, which she ascribed to bleeding. On examination, she drew my attention to what she termed the quickening movements of the child; this was the aörtic pulsation, which could be distinguished by the hand through the integuments; nothing could convince her that she was not pregnant. I have known women to insist upon their having felt the child moving and kicking within them, not only in cases where there was indubitable proof of the child's death at the time, but also, as mentioned in the case of quickening, where no child was in the uterus." What is the cause then, of this fallacy? We believe it arises, first, from the sudden escape of a portion of air from one part of the intestines to the other; second, from the pulsation of the aörta through the abdominal integuments; third, from spasms of the uterus, as in nervous or hysterical pseudo-pregnancy; fourth, from hydatids, polypuses and excrescences of the uterus; fifth, from abdominal dropsy, dropsy of the uterus or ovaria; sixth, from exalted peristaltic action; seventh, from irregular or simulated contractions of the abdominal muscles; eighth, from mere imagination of the female; ninth, from an enfeebled state of the fœtus, where it is small and hydrocephalic and a quantity of liquor amnii exists; or, a large fœtus, and little liquor amnii. Either of these two last states may entirely obscure the motion of the fœtus from the notice of the mother at this particular period. Baudelocque and Leveret give instances where females have carried children to the full time without quickening or being sensible of the motion of the fœtus.

Dr. Taylor speaks of a female who did not perceive the movements of the child, till it was felt kicking against her after it was born. Dr. Kennedy speaks of two women who had every other symptom of pregnancy, and yet one of whom carried two children, and the other, one, to the full period, without quickening or feeling the motion of the child. Add to this the possibility of a female quickening during sleep, and of course the circumstance passing unnoticed.

Thus, we perceive, that quickening may either not occur when a woman is pregnant, or, as is frequently the case, a sensation so exactly resembling it, as to be mistaken for it even by women who have borne many children, may be and is very frequently experienced. Hence, a

great deal of deception may ensue from too implicit confidence in this sign. Dr. Ramsbotham remarks: "The action of the fœtus in utero, is a positive sign of pregnancy: but its absence does not prove the non-pregnant condition, since no movement could be detected if the fœtus were dead; and its detection might be extremely difficult when the fœtus was feeble."—(System of Obstet., p. 85, by Keating.)

We are now through with the presumptive evidences of pregnancy.

II. SENSIBLE EVIDENCES.

This division will embrace a class of signs, which, from their being cognizable to the scrutiny of the accoucheur, and not depending upon hearsay testimony, must approach nearer to what we may term demonstrative evidences. This will be the more apparent when we come to examine them in detail, when we shall find them not depending, as was generally observed in the former case, upon sympathies more or less remote, but most frequently being essentially and physically caused or produced by that which we wish to detect, namely, *the fœtus in utero.* To facilitate the investigation of these evidences, which are cognizable by the medical attendant, they may be divided into three classes: first, Tangible evidences, or those which come within the range of a manual examination; second, Visible evidences, or those which are exposed immediately to our view; and, third, Audible evidences, or those detected by auscultation.

First. Under the head of evidences of utero-gestation sensible to the touch, we shall consider the alterations in size, form, and position of the uterus and the other organs of generation, as ascertained by manipulation; also the motions of the fœtus in utero, whether active or passive, which are communicated to the hand of the examiner.

Considerable weight has been attached to those signs elicited from *le toucher* or examination *per vaginam;* the object of which is, first, to ascertain the condition or state of the uterus, and second, that of the vagina. Our first step is to place our patient upon her left side on the bed, with her hips close to the edge of it, and having oiled the index finger of the right hand, we introduce it within the vagina, pressing against its sides. If the person be a virgin, we shall find considerable difficulty, as the canal is contracted, and any attempt to force the finger into it produces considerable pain. If the *hymen* is perfect, we cannot accomplish this without destroying this membrane; in some it is more perfect and complete than in others; indeed, it occasionally entirely closes the vaginal passage. Formerly, the absence of this membrane was looked upon as a proof of the want of virginity; but this view has gone into disrepute, as there are cases in which it is scarcely perceptible

at a very early age, when it could not have been destroyed: and even where it has been perfect, it may have been destroyed in various other ways without sexual connection causing its rupture. Its absence, therefore, proves nothing; as it cannot inform us with any certainty, whether the individual may have had sexual intercourse or not. Neither is a perfect hymen a proof of the absence of pregnancy. There are cases on record of females having the hymen, or a portion of it, at the time of their labor. Dr. Tucker met with a case in which this membrane was perfect in a woman taken in labor. (Merriman's Synopsis, p. 218.) The same circumstance was observed by G. Tortosa, Champion, and Mauriceau. When impregnation takes place under these circumstances, it is generally the result of one coitus; hence, this accounts for the fact of its being oftener met with in seduced females. Dr. Kennedy records a very remarkable case of this kind in his work on Obstetric Auscultation: (p. 33–4, by Taylor,) "In March, 1830, a very respectable man, servant in Mr. B.'s family, waited upon me in company with his niece, an interesting and innocent looking girl of about twenty years of age. He stated that his mistress was anxious to take her as her waiting-maid, but as an apothecary, who had lately prescribed for the girl while in a bad state of health, pronounced her pregnant, he brought her to me to ascertain, or rather to disprove it, for of her innocence he seemed perfectly satisfied. On questioning the girl, at first, in her apparent innocence, she seemed quite amused with the imputation, asking me, with the greatest *naïveté*, whether *she could have become so in her sleep?* On persisting in my inquiries, however, she denied in a most solemn manner, the most remote possibility of such being the case, and that with such seeming absence of guile, as caused me to doubt whether her character had not been unjustly called in question. This idea was heightened when I could discover no abdominal enlargement or sensible change in her breasts, and on her denying her having had any sickness of stomach; she admitted that her menses had not appeared for three months. What struck me, however, as very curious, was, that on my proposing a vaginal examination, in place of its being objected to, as it almost always is, and that with extreme obstinacy, by delicate-minded females, and particularly by such as are unmarried, she acceded to it with alacrity, and appeared almost to seek it; the reason of this soon became obvious enough, as on my endeavoring to insinuate the finger within the vagina, it was completely stopped by the most perfect hymen that ever came under my observation, and every attempt to proceed with the examination, and get the finger up to the uterus, was attended with such distress and irritation, as to oblige me to desist. Auscultation was

now had recourse to, and the fœtal heart's action and placental souffle were detected. On my informing her that I had quite satisfied myself of her being pregnant, she still persisted in her denial, and laid great stress on the circumstance of her parts being perfect and uninjured. I now perceived the drift of her conduct in submitting so willingly to the examination, and that the girl herself, from this circumstance, was confident that she could not be pregnant. However, she was soon undeceived in this respect, and at length confessed that a married man had once had connection with her, but that he had taken precautions to avoid injuring her, and assured her, whilst she remained perfect in this respect, she could not become pregnant, a fact which she implicitly believed. In this they were both deceived, as she was delivered in the Lying-in-Hospital, on the 24th of August, 1831, of a full-grown female infant."

There is a peculiar bluish or purplish tinge of the vagina, upon which M. Jacquemier has called the attention of the profession, during the early months of utero-gestation. He states that between 4,500 and 5,000 females have been examined by him in the La Force prison, and in no instance has he been mistaken. This is corroborated by Parent-Duchâtelet. In some cases of chronic inflammation of the uterus, and congestion of the neck, both the neck and vagina present this bluish appearance. I have specially noticed it in syphilitic patients, which class, M. Jacquemier has principally examined; for he himself affirms that the vaginal membrane may acquire a darker color than usual, from other causes than pregnancy. I have noticed it during the latter months of gestation, but there appears sufficient reason why this should take place at this time, for the uterus is enlarged, and pressing upon the principal venous vessels which supply the vagina, creating a stasis of blood. It has been particularly noticed by Mr. Cruickshank during the rutting season in the lower animals.

In the virgin, the neck of the uterus is fleshy, firm, hard, and of a projecting papillary form, measuring about two-thirds of an inch in length. In the female who has borne children, this part of the uterus, although it never regains its primitive form and structure, approaches so nearly to it in many cases, that it would be next to impossible to determine whether the individual had ever borne children or not. At the same time, cases are often met with, in which the neck of the uterus remains after childbirth, broad, short and flabby, with the *os* gaping. After impregnation, the orifice of the uterus, which before gaped, is now sealed up by a peculiar glue, or adhesive substance, while the neck and os become considerably softer. According to Leveret, its two lips now form an equal plane, whereas, hertofore, the anterior lip was pro-

longed downwards below the posterior. Stein states that the orifice, which had been of a triangular form, now becomes circular. The following is a general view of the physical phenomena presented in the uterus, during the course of gestation through each month.

First Month.—At this period there is but little change observed in the form and volume of the uterus. However, some writers, as Kennedy, Taylor, etc., assert that the uterus enlarges considerably during the first month; while others assert that it does not sensibly enlarge, among whom is Dr. Maygrier, who remarks: "At the end of the first month, the accoucheur has no sensible evidence of the existence of pregnancy, nor even of *fulness* or *action* in the uterus."—(Midwifery Illustrated, p. 80.) It is probable that both of these assertions are upon extremes; and we would hit the mark better to admit that there *is an action of the uterus* in a greater or lesser degree, but no sensible fulness; this action amounting to a contraction of the uterus, as if it would embrace more intimately the new product enclosed within it.

Second Month.—Towards the close of the second month the uterus enlarges very much; its form is round and fills most of the lower pelvis; but the abdomen, on the contrary, becomes contracted, tense, and sometimes a little painful. The fundus is inclined to the posterior part of the pelvis, consequently throwing the os nearly against the pubis, hence, changing the relation of its axis, bringing the os nearly within reach of the finger, as the anterior portion of the vagina is shorter than the posterior, the finger has a shorter distance to travel to reach it.

Third Month.—It now increases in length as well as in size, its base rising as high as the pelvic region, being on a level with the abdominal strait. Its form is rounded, globular and unequal, and may be raised without pain to the female. The abdomen now, for the first time, becomes slightly tumefied by the crowding back of the intestines. There is but little change in the neck as yet.

Fourth Month.—The uterus now rises above the lower pelvis, with its base two or three fingers' breadth above the region of the pubis. The relation of the uterus to the axis of the pelvis is changed, and the os, which was before perceptible low down, will be felt high up and nearer to the sacrum. The abdomen now becomes quite enlarged.

Fifth Month.—The existence of a fœtus in utero may now be ascertained with considerable certainty, both the sensible and rational signs uniting to form it. The base of the uterus is now as much as one inch and a half below the umbilicus, and is of a spheroidal shape; the neck is higher, inclined to the left and behind, and the vaginal portion of the neck slightly diminished. The os is still closed, but is softer. The

presence of the fœtus may now be demonstrated by *le toucher* with certainty. It is at the beginning of this month that quickening is observed. Ballottement is performed with a great deal of certainty during this month, and clearly detects the fœtus in utero.

Sixth Month.—The uterus now developes so rapidly, that its base is found two fingers' breadth above the umbilicus; its form is that of an ellipse, and is elongated from above downwards. The neck now begins to enlarge at the base, swells and becomes softer; the os now is slightly opened, and will nearly admit the end of the finger; indicating that it is now fully prepared to take a part in the general dilatation of the uterus. The abdomen now becomes much enlarged, and the child's head can be distinctly felt through its distended parietes.

Seventh Month.—The fundus of the uterus now begins to enter the epigastric region. But the degree of its elevation is less than in the former months, and it still decreases. The uterus, instead of being elliptical, now begins more and more to assume the spherical form, depending on the dilatation of the neck, and the active part it takes in the enlarging of the uterus. The neck becomes shorter and softer, and the os opens so as to admit the end of the finger with ease. The female now becomes much larger by the increase of the lower planes of the uterus. The child's head is now so large, that it can no longer be displaced by the touch, without considerable force and pain to the patient. This circumstance renders pregnancy doubly evident, and serves to accurately determine its advanced stage.

Eighth Month.—During the whole of this month, and especially towards the end of it, the base of the uterus occupies most of the epigastric region. It becomes much more capacious, and more and more spherical and rounded; the umbilicus is much distended, and the neck becomes shorter, softer and more enlarged, especially towards its anterior lip. The neck can now be reached only with much difficulty, owing to its antiversion. The child's head is now large and heavy, and can be raised only with difficulty.

Ninth Month.—The end of this month is the end of pregnancy. Now the base of the uterus, instead of rising as usual, sinks and is found near the umbilical region. The amplitude of the organ affects the sides, in consequence of the dilatation of the neck and its extreme enlargement; the latter of which has entirely become defaced, and now assumes the form of a soft cushion, more or less enlarged. The child's head being large and heavy, is now engaged in the superior strait.

Although the foregoing are the changes that usually take place in the body and neck of the uterus, yet these changes are not implicitly

obeyed in all cases; in some cases, according to Smellie, "the neck is formed as long in the eighth month as it is in others in the sixth."—(Midwifery, vol. 1, p. 183.) On the other hand, according to Dr. Gooch, "it is as much altered at the fourth month, in some women, as in others in the sixth; especially in those who have had several children, in whom the neck yields more readily than in first pregnancies."—(Midwifery, p. 214.) The uterus, however, may be *enlarged*, and yet the female not be pregnant; and it is important that the accoucheur should be able to distinguish between an enlarged uterus caused from impregnation, and that produced from other causes. In the unimpregnated uterus, when the finger is passed up between the os uteri and the pubis, it meets with no solid resistance; the bladder and soft parts here yield to pressure, and if the pelvis be shallow and the patient thin, the fingers of the left hand pressed firmly down into the pelvis from above, behind the pubis, may even be distinguished by the finger of the right hand introduced into the vagina. But we do not find this the case in the impregnated female; as the body of the uterus, becoming enlarged, fills up this space, and the finger in the vagina meets with the firm resisting tumor or enlarged body of the uterus. By placing the left hand on the tumor, and pushing it down within our reach, communicate the sensation of its being the motion of the same body above and below, and what effect moving the tumor and neck below shall produce on that felt above. Dr. Gooch remarks, "by this means the practitioner becomes certain that the tumor which is felt through the walls of the abdomen, is the same as that which is felt through the vagina, the most satisfactory proof that it is an enlarged uterus."—(Diseases of Females, p. 215.) It is evident, that in diseased enlargements of the body, or appendages of the uterus or of the neighboring viscera, as diseased ovary or distension of the fallopian tubes, the alternate motion of the uterus and tumor above and within the pelvis, will often produce the corresponding motions alluded to. We conceive that Dr. Gooch's manipulation could not convince us of the presence of a fœtus in utero, unless the motions of the fœtus were felt through the distended abdominal parietes, as this enlargement may be produced, first, from a dropsical state of the uterus; second, from diseases within its cavity, as tumors or excrescences; third, from moles, or false conception, or hydatids; fourth, from a retention of the menstruous blood from the occlusion of the os tincæ. But when this enlargement, as distinguished through the parietes, be uniformly round, smooth and elastic, combined with rational and sensible evidences, the proof of pregnancy is very strong.

Abdominal enlargement, if not the most certain, is at least the most

familiar evidence of pregnancy, and invariably accompanies this state, when at a sufficiently advanced stage. Until after the third or fourth month, and often later, the uterus does not rise out of the pelvis, and, of course produces no abdominal enlargement. From thence to the sixth month, it enlarges progressively, and may be felt between the pubis and umbilicus, and previous to this time the abdomen is tense and rounded. The fundus of the uterus generally arrives at the umbilicus about the end of the sixth month; in the seventh it gets above this point; in the eighth, gets into the epigastric region; in the ninth month, it approaches to the scrobiculus cordis, and falls somewhat lower down a little before labor. The spinal column prevents the uterus from keeping an exactly central position; it will therefore be found to exhibit a greater bulk at one side or the other, according as the child is placed more to the right or left side. However, the progressive enlargement of the abdomen is subject to a great many variations; for instance, the pelvis being much under or above the standard size, will cause the uterus to rise earlier or later into the abdomen. Again, the abdominal parietes being very tense and unyielding, may render the ascent of the uterus into the abdomen apparently more early; while, on the contrary, where there is an extreme degree of relaxation in these parts, the uterus does not rise so early, but may lie low in the abdomen, the tumor in some cases projecting directly forward, or even hanging down over the pubis. Dr. Kennedy relates an interesting case of this kind in a "woman who had had a number of children; when in labor with her second child, hernia took place at the umbilicus, which gradually increased in extent with each child she carried, until at length the impregnated uterus made its way completely out of the abdomen, and became suspended over the pubis."—(Obstet. Auscul., p. 47.) There are cases in which the occurrence of a progressive enlargement or development in the abdomen, exactly corresponding in progress and degree with that observed in pregnancy. A defined tumor or fulness is observed first in the pelvis, and then rising gradually out of this and proceeding upwards, as does the impregnated uterus, as ovarian dropsy for instance. The progress of the suspected tumor requires to be watched with care. If they are developed slower or quicker, with irregularity, sometimes rapidly for a time, and then become slower or altogether suspended, we may suspect that the tumor is not caused from pregnancy. Or, if the tumor does not present that peculiar circumscribed or globular form, or as pregnancy advances, approaches to an ovate, narrowing from above downwards, presenting projecting inequalities, and a yielding sensation to the touch, caused by the limbs and other prominences of the fœtus,

and distension with the liquor amnii, we may suspect that it is not caused by pregnancy, and give our diagnosis according. Enlargement of the abdomen may be produced by many causes foreign from that of pregnancy: 1st, Dropsical affections of either the abdomen, uterus or ovaria; 2d, Chronic disease of the uterus itself or of the ovaria; 3d, A retention of the catamenia, from some cause preventing their flow; 4th, Enlargement of almost any of the abdominal viscera. Consequently, but little reliance can be placed upon this circumstance, though combined with others of greater importance. Dr. Blundell records an interesting case, which should be kept in remembrance by all accoucheurs as a beacon to shun a similar error: "Dr. Haighton was sent for in consultation with a distinguished London surgeon, to a case supposed to be ascites, for which the patient was to be tapped the next day. Dr. Haighton suggested that this swelling might be a dropsy of the uterus, but no particular examination was made to ascertain this. During the night, the sack containing this fluid gave way, and a flood of fluid was discharged, and the abdomen collapsed rapidly, a fœtus not larger than the first joint of the finger escaped; the woman escaped the paracentesis and did well." -(Princip. and Pract. of Obstet., p. 78.)

The following amusing case was related to me a few years ago by a neighboring physician: "A young lady, whose abdomen became much enlarged, called upon Dr. B., a young physician, to ascertain the cause of this enlargement, as her condition caused numerous severe accusations from her friends. The doctor pronounced it a case of ovarian dropsy, and prescribed medicines that would *take it out by absorption*. The dropsy, however, got no better under his treatment, but rather increased than otherwise. The lady became dissatisfied, and concluded to send for another physician: accordingly Dr. H. was sent for. After an examination, Dr. H. was well satisfied that the lady was near *confinement*. And upon being interrogated by the lady whether it was dropsy, and if so, could he take it out? he remarked: 'madam, you undoubtedly *have dropsy*, and I see no other alternative, than it must *come out at the same place where it went in*.' And so it turned out, for in a few hours she was delivered of a *fine boy*. The lady has taken the precaution not to have dropsy again."

Percussion has also been relied upon as a means to ascertain the existence or non-existence of uterine pregnancy. "In order to become acquainted with the sounds we expect to meet with in our examination, we ought to be conversant with those produced by striking gently with the tips of the fingers against substances corresponding in texture and consistency with the parts we wish to detect. If we strike in this way

gently upon the cheek, having previously inflated the mouth, we shall perceive a very sensible difference between the sensation felt and sound emitted here, and those observed on percussing the soft or fleshy part of the thigh or calf of the leg; the former giving us at once the idea of having struck upon a soft bag distended with air, whilst from the latter is emitted an obtuse, dull sound, indicating the substance beneath to be solid, but soft. Again, let us observe how much different is the sensation felt, and what a very peculiar sound is produced by striking the cranium, or superficial part of the tibia, and what a decided contrast this bears to both the others; the sensation and sound here inform us that a dense, dry, and hard substance has been struck. In the unimpregnated female, and in the impregnated in the early months, percussion produces the first mentioned sensation and sound, which is more or less tympanitic over the greater part of the abdomen, according to the quantity of air contained in the intestines. There is a modification to be met with in this tympanitic sound, depending upon the coëxistence of fluid with air in the bowels, which Piorry denominates *humorique*. As the uterus rises out of the pelvis, immediately over this region we have a sensation and sound, more or less modified, resembling those produced by striking the calf of the leg or thigh, in connection with the tympanitic sound. As the uterus enlarges, the extent over which these sensations and sounds are observed increases, as also do the sensation and sound, but the tympanitic diminishes. In the advanced months, a dry, dense substance is perceptible, and becomes more and more so the nearer pregnancy is to a full period. They can be generally produced by percussing the most inferior part of the uterine tumor, just above the pubis, where the head of the fœtus, which produces the phenomena in question, is most generally situated, at times being more perceptible on the right or on the left side, according as the head is placed. They are not always, however, confined to the lower part of the tumor, but may be detected at its upper part, when the head is situated there, as in breech or feet presentations. The head can frequently be distinguished by manipulation through the distented parietes; thus corroborating the evidence we arrive at by percussion.

Certain *motions* of the child have been considered elsewhere, such as were sensible to the individual herself, and also those ascertained on a vaginal examination. Those ascertainable to the accoucheur through the abdominal parietes, now demand some attention. These motions may be either active or passive. The first can only occur when the child is alive and capable of inherent vital action; the latter may be produced whether the child be dead or alive, by any cause capable of

altering its situation *in utero;* such as change of position on the part of the female, the effect of the child's own gravity, or external force applied so as to displace it. The active motions of the child may be ascertained by first placing the female on her back, with the shoulders elevated, and the legs drawn up so as to relax the abdominal muscles. Then place the hand over the uterine tumor, and make slight pressure with the ends of the fingers; thus, a sudden jerking motion may be noticed at some part of the tumor, caused by the change in one or more of the extremities of the fœtus. This motion will be stronger or weaker in proportion to the age and strength of the fœtus, and the space the limb has to pass through before it comes in contact with the walls of the uterus. They are more distinguishable in advanced than in early pregnancies. If the active motions of the child are not detected in this way, dip the hands into very cold water, and suddenly apply them to the abdomen as already explained, will generally enable us to detect them. Both methods will, however, often fail, and we shall not be able to detect them by any means whatever. Although the active motions of the child are more to be relied on than the sensation of quickening or child's motions as perceived by the female, yet it is even possible to be mistaken as to the movements of the fœtus by an examination through the abdomen. This mistake may depend upon the sudden passage of flatus from one portion of the intestines to another, spasmodic action of the abominal muscles, of the uterus, or of certain fibres of either, and the pulsations of the aörta, especially if it be irregular.

The passive motion of the fœtus *in utero*, denominated by the French, *ballottement*, depends, as has already been stated, upon external causes acting mechanically upon it; the gravity of the fœtus by the female changing her position may produce it; or by the fœtus moving like an inert mass within the cavity of the uterus, the motion being sensible by the impulse communicated on the child's falling against the sides of the uterine cavity. To detect this, take the impregnated female during the fourth, fifth and sixth months, and place her in an erect position, then insinuate the finger within the vagina, and place the end of it against the body of the uterus, whilst the other hand is placed upon the uterine tumor above, and suddenly percussing the uterus, the fœtus will be felt to recede from the finger, and again fall upon the uterus where the finger rests. This tilting up of the fœtus *in utero*, is termed by the French, *abattement*, and is acceded to by Dr. Kennedy.

Kennedy recommends that the female should be examined in a reclined position, and placing the fingers of both hands spread out against the lateral parts of the abdominal tumor, and suddenly pressing upon

it, first upon one side and then upon the other, a sensation will be experienced of a solid body falling against the sides of a membranous bag containing the liquor amnii, in which it is partially suspended. By this method of manipulation the accoucheur is more apt to be led astray than by the former, yet, both are liable to exceptions. Great tension of the abdominal muscles, by binding the uterus back against the spine, may prevent our detecting or producing the passive motions of the child. Extreme abdominal distention from air in the intestines, fluid in the cavity, or cellular tissue of the integuments, or even fatty deposit in this part may produce the same effect. A sensation resembling *ballottement*, in some respect, may be produced independent of pregnancy: such as ascites combined with abdominal tumor, particularly if this were movable; such, for instance, as fatty tumors of the mesentery, or tumors attached to any of the floating viscera.

Notwithstanding, *ballottement*, when skilfully performed, in detecting the fœtus *in utero*, is a most valuable sign, and may be regarded, when the sensations are felt, as a positive evidence of pregnancy. Dr. Montgomery regards it "when distinctly felt, a proof positive of the fœtus in utero."

Dr. Maygrier remarks: "This phenomena, so wonderful in its effects, not only demonstrates the certainty of pregnancy, but also that the child is alive, since a dead fœtus never responds as promptly and lightly to the motions impressed upon it."—(Mid. Illustrated, p. 89.) However, a great many difficulties attend the performance of this operation, such as depth and contraction of the parts, extreme irritability of the individual to be examined, the pain often experienced, and the absolute impossibility of prevailing upon the delicate-minded or irritable female to submit to what they look upon as an indecent and revolting ordeal.

(*To be continued.*)

ART. II.—*Cases Illustrating the Practice of Medicine in the counties of Rusk and Panola:* By JAMES E. SMITH, M. D., of Pine Hill, Rusk County, Texas.

WAS called on the 25th of June, 1852, to see a negress, the property of Moses Boynton, Esq., of Panola county, aged 45 or 46. She had been subject to scrofulous indurations about the cervical region, for about two years, which had, in the last six months, gradually suppurated, and were now large ulcers, of an indolent character, on both sides of her neck. Her general health was very bad, as shown by the great

emaciation of the muscular system, deranged digestion, torpid bowels, inactive liver, etc., etc. There were also some hysterical symptoms present. Mr. B. had given her for the past year, "Janes' Alterative and Sanative Pills," "*usque ad nauseam*" without any relief to the scrofulous disease, or amelioration of her condition whatever. She had not been under the care of any physician previously.

With a view to improve her digestion and general health, I prescribed: ℞. Blue mass, rhubarb, *a a*, grains xxiv; ipecac., grains vi: Mix, and make 24 pills. Also, ℞. Compound extract colocynth, grains xxx; ext. hyosciamus, grs. xx; oil cinnamon, grs. xx; ipecac., grs. v: Mix, and make 30 pills. Directed 4 of the mercurial pills every third night, and in the intervening periods, from 2 to 4 of the vegetable pills to keep the bowels regular, and to insure the aperient action of the blue mass; also, a nutritious diet, and to apply emollient poultices to the ulcers every night, and to cauterize them freely around the borders every morning with nitrate of silver in substance.

July 10th, 1852. Patient better, digestion improved; bowels regular; appetite good; skin clearer and of a healthier hue. The ulcers have lost that unhealthy, *flabby* appearance, and have assumed a more florid, granulating character, the discharge of pus is also considerably less. Prescription: Bowels to be kept regular by the vegetable pill; discontinue mercurial pill, and take a fluid drachm of the following, three times a day, two hours after each meal, in sweetened water: ℞. Iodide of potassa, grs. 96; camphor water, ℥iv. Directed the nitrate of silver and poultices to be discontinued, and for a local application, use the following: ℞. Iodide potass., ʒii; iodine, ʒi; water, ℥viii. Mix, and apply morning and night; ulcers to be kept from the air, by having a greased cloth constantly to them.

July 25th. Was unable to take the medicine in the doses directed; had taken it in half the quantity; ulcers improved; general health better. Prescription: Gradually increase the medicine to two tea-spoons-full for a dose, if possible, and continue the local application.

August 12th. Was requested to visit Rachel, (the negress); was informed that the ulcers were nearly well, but that she was badly salivated. Found her mouth very much ulcerated; profuse salivation; the saliva running almost in a constant stream, as it were; ulcers very much improved and healing fast. Prescription: Discontinue all the medicine on hand, and use, six or eight times a day, as a wash and gargle for the sore mouth: ℞. Tannin, ʒiv; water, ℥viii. Make solution. Nitrate silver solution, (2 grs. to the ounce of water,) as a local application for the ulcers externally. She grew rapidly better under the use of carb. iron, cinchona and tinc. iron in bitter infusion.

Her mouth, and also the ulcers got entirely well in three or four weeks. With the exception of a slight attack of "chill and fever" in 1853, she has had uninterrupted good health to this day, (March 27th, 1857.)

February 13th, 1855. Was called to see a negro boy, Simon, the property of Moses Boynton, Esq. This boy, the son of the negress, Rachel, is a large, stout negro, aged 28 or 30, blacksmith by trade. He had been hired out 18 or 20 miles from home, was sent home on account of his inability to work for the present. Says he has been sick for four or five months, though bad only for a few weeks. Present condition: large ulcer on the right cervical region, under the angle of the jaw, discharging a white, creamy-looking pus or matter; indurations on the corresponding side; these are very sensitive; has also an ulcer on the parietes of the abdomen, and another on his back between his shoulders. These ulcers he said had been on him for four or five weeks, and commenced like a common abscess or boil; were lanced as soon as fluctuation was perceived in them, but instead of getting well, they had to this time gradually enlarged. No indication was present of granulations of a healthy character; on the contrary, they were pale and flabby, and the pus was of a thin, flaky appearance. The ulcers or abscesses on his abdomen and back, were not of so well defined a scrofulous nature as the one on his jaw, or neck rather; the latter had the everted edges and hardened base as well as all other peculiarities so characteristic of scrofulous ulcers in that locality. In addition to the ulcers which I have attempted to describe, he had an affection of the skin of 8 or 10 years standing, which consisted of little patches of very troublesome sores confined to his armpits and groins. Sometimes this latter affection would be entirely well, and in a few days at its height again, simulating porrigo or some of the multitudinous forms of impetigo. His appetite was only slightly impaired, digestion tolerably good; bowels slightly costive; skin dry; circulation 85, languid. Prescribed the same vegetable pill as in Rachel's case—one before each meal, for a few days. Iodine liniment to the ulcers, followed by slippery elm poultices at night, and also to take three grains of hydried. potassa three times a day.

March 24th. Ulcer on the back and belly much better; the one on his jaw about the same. Continue treatment, only increase the potassa to 4 grains a dose, and cauterize ulcers.

April 14th. Ulcers on the back and belly nearly well; the one on his neck decidedly better. Continue treatment with the addition of 4 grs. of hydrated oxide of iron after each meal.

May 30th. Ulcers healed up; skin "slick and greasy;" says he feels like a "new nigger." Prescription: ℞. Precip. carb. iron; powdered gentian, *a a* ℥i; orange peel, ℥ss; best port wine, 1 quart. Dose, a table spoonful after each meal, shaking well before using.

June 26th. Simon is still well; no sign of the ulcers or of the skin affection; he has regained his health entirely, and since the fall of 1855, has not lost a day from work until the last twenty days, May 28th, 1857; the skin affection has annoyed him some, but it is yielding to a mild course of alteratives, viz.: to small doses of iod. potass and sarsaparilla internally, and zinc lotions externally.

February 1st, 1854. Mr. Laird Fleming to-day brought his negress, Clara, to my house, for medical treatment; aged 12 years. She had been in extreme bad health for the past year. Present condition: very much emaciated and feeble; slight fever of an evening, followed by copious diarphoresis, skin afterward very dry and harsh; tongue loaded with a yellowish coat; pulse habitually 100 to the minute, and of the peculiar thrilling character indicative of chlorosis; bowels irregular, sometimes costive, then again the opposite condition prevailing. In addition to the symptoms enumerated, there was a hardened, indurated state of the cervical glands; they were very sensitive and sore, and slightly inflamed, though no evidence of fluctuation, or other symptom, leading me to suppose that there was any pus already formed. There was an ulcerated state of the tonsils and inflammation of the uvula, as well as an elongation of it, the irritation of which kept up a constant cough. She could not speak above a whisper, neither could she breathe through her nostrils. Prescription: ℞. Blue mass, grs. ii; ipecac, gr. i; carb. sodæ, grs. iii. Make into a pill and give it, and repeat every three hours until three doses are taken; apply solution of the nitrate silver to the throat, of the strength of 4 grains to the ounce of water.

Feb. 2d. Medicine had operated gently on her bowels, the discharges fœtid and very bilious. Prescription: ℞. Sulph. quinine, grs. xx; aromatic sulph. acid, gtt. x; water f℥ii. Make solution. Directed her to have a tablespoonful every two hours during the morning, until all was taken.

Feb. 3d. Patient better, missed both the fever and the profuse sweat, although her skin was gently moist all the time. Still under the influence of the quinine to some extent. From the use of the caustic, the ulcers and inflammatory action in her throat were slightly improved. The uvula being still disagreeably elongated and tonsils enlarged, I this morning excised the uvula and also the right tonsil; applied a saturated solution of nitrate of silver to the throat; prescribed syrup of iodide

of iron in doses of ten drops, three times a day, two hours *before each meal*, and 2 grains of iron, an hour *after each meal.* Bowels to be regulated by the compound colocynth pill when indicated.

Feb. 7th. Patient gradually improving. She can speak more audibly, begins to look better, has considerable appetite. Directed 15 drops of the iodide three times a day; also increase the hydrated iron 4 grains at a dose.

Feb. 17th. Patient improving very fast; indurated condition of cervical glands considerably lessened; voice more distinct, tonsils well; has gained flesh, and has an inordinate appetite and good digestion. There is, however, an ichorous discharge from the nostrils, neither can she smell anything, nor breathe through them. I this morning introduced Bellock's instrument for arresting hæmorrhage from the nose. The smooth, convex extremity of the canula forming the head of the instrument, being introduced as far as the naso-palatine septum, and the spring being pushed forward, the curved extremity of the canula readily found its way into the mouth, a ligature made of slackly twisted cotton thread, with a small plug attached, was passed through the eye of the instrument; this plug, as well as the ligature, was saturated in a strong solution of nitrate of silver, and gently drawn through the entire nasal cavity. Both nostrils were subjected to the operation. In the evening I reäpplied it.

Feb. 19th. Discharge from nasal cavities lessened to some extent; she can speak more distinctly, and can smell and breathe through one nostril; cauterize the nasal cavity again; continue treatment.

I cauterized the nose every few days, and she recovered the use of one nostril; the other gradually got well, though she can neither smell nor breathe through it. A curious peculiarity of this case was and still is, that she could expel air through her nose, but could not inspire it. She was kept under the use of the syrup of the iod. of iron for three weeks longer.

She has had good health to this time, and is now a large, well-grown, likely negress; and with the exception of a slight attack of irritative fever upon the establishment of her menses, has not been sick a day since.

May 28th, 1857.

ART. III.—*Speculative and Practical Researches into the Natural History of Cholera.* (Continued from Volume XIII.) By BENNET DOWLER, M. D.

GENERAL REMARKS.

THE present nomenclature of cholera is not very satisfactory. The French adjective, *cholerique*, is now often used in that language as a substantive to denote a person affected with cholera, and might be adopted as more convenient than the double substantive, *cholera patient*. *Choleraïc* is gaining ground daily, as an English adjective, as choleraïc stools, choleraïc symptoms, choleraïc subjects, etc. *Choleric* has long been appropriated as the synonyme of rage or fury. Circumlocutions, which clog the wheels of language are not desirable. These remarks are made in this place, because the terms alluded to, may, perhaps, occur in the sequel.

The term *cholerine*, is not only an affected refinement, a distinction without a difference, but it is an illusion fraught with danger in a practical point of view, especially during an epidemic. In the Supplement to the Dictionary of the French Academy, this word is defined thus: "CHOLÉRINE. *Nom donné à la diarrhée ordinaire*, depuis l'apparition du choléra asiatique en Europe." Dr. Harris, in his Medical Dictionary, says: "CHOLERINE, a slight diarrhœa during the prevalence of cholera—a premonitory symptom of the disease" Dr. Dunglison's definition is: "CHOLERINE, a diminutive of cholera. The first stage of epidemic cholera; also the premonitory symptoms of cholera."

Cholerine is cholera or it is not. If cholerine be but an "ordinary diarrhœa," or "a slight diarrhœa," let it be so called. If it be "the premonitory symptoms of cholera," and still more, if it be "the first stage of epidemic cholera," *cholera it is*. A most fatal error, which has slain its thousands, nay, hundreds of thousands, is the popular belief that the first stage of cholera is not cholera but an "ordinary," "slight diarrhœa."

To propagate the doctrine that a patient in the first stage of cholera is not affected with cholera but something else, even cholerine, can hardly fail to extend this error. Cholerine is a pernicious neologism, full of perfidy, reservations, equivocations and mortal falsehoods, of which, however, the able lexicographers quoted are innocent.

The plan of these papers on cholera, includes neither a systematic attempt to produce a treatise, nor an exhaustive analysis of any special branch, speculative or practical, concerning this malady.

Before proceeding to post-mortem examinations, it may be proper to enter upon the investigation of some speculative and practical topics.

If the reader should find suggestions where probabilities might be hoped for, and probabilities where demonstrations are desiderated, let him give thoughts, facts, and deductions more satisfactory concerning the great plague, the "black death" of the nineteenth century. The obscurity which envelops the career, pathology, treatment and pathological anatomy of this disease, affords the best reason for further inquiry. Whatever miscarriages may occur in the reasonings which follow, it is believed that the facts reported are correctly stated.

Symptomatic, therapeutic, and post-mortem histories made on the spot, and in the presence of the phenomena recorded, may not be perfect, but they will be vastly more accurate and valuable than the fleeting, dim representations of the most retentive memory. It has been truly said by Gray, the poet, that "memory is ten times worse than a lead pencil. Half a word fixed upon or near the spot, is worth a cart-load of recollection. When we trust to the picture that objects draw of themselves upon our mind, we deceive ourselves; without accurate and particular observation, it is but ill-drawn at first, the outlines are soon blurred, the colors every day grow fainter, and at last, when we would produce it to anybody, we are forced to supply its defects with a few strokes of our own imagination."

THE CHOLERAÏC STOOLS.

It has been asserted that the epithelium of the Lieberkuhn's glands or mucous crypts, which desquamate in the choleraic liquid, give it a whitish appearance. Although this exuviation of the epithelium of the intestinal mucous membrane, may contribute to or constitute a part of the whitish appearance of the choleraïc liquid, yet the homogeneous, uniform, non-flocculent aspect which it often displays, seems to be peculiar, resembling, if not identical with chyle diluted with lymph and serum.

"The stools in Asiatic cholera," says Prof. Lehmann, "have been submitted to many analyses, which, however, have led to few results, insomuch, as the simultaneous character of the blood and of the cholera process in general, have not been taken into consideration. The only peculiarities which we find in the stools in cholera, are shreds of cylindrical epithelium, an extraordinary quantity of water, a little albumen, very little biliary matter, and a relatively large amount of salts, amongst which, according to the evidence of all observers, the chloride of sodium predominates, and often to such a degree, as to exceed in amount all the organic matters."—(*Physiol. Chem.*, i, 539. Phila., 1855.)

Prof. Lehmann's assertion that "the rice-water appearance of cholera stool, simply depends on the suspended epithelium," is entitled to great

weight, coming from so high an authority; yet, as already indicated, it seems far from being universally admissible, judging from merely physical appearances. Epithelial *debris* and shreds in the stools give a whitish hue, without doubt, while the serosity in which they are suspended, is sometimes nearly limpid, yet in most cases, there will be found an uniform, slightly opaline liquid, resembling a mixture of milk and water, or chyle, lymph and water, with or without suspended flocculent, shreddy *debris* of the mucous tissue.

Is it not probable that a retrograde action or exosmotic flow of chyle and lymph takes place in cholera? May not the shreddy matter itself be albumen or lymph coagulated by the gastric juice or accidental acids? In cholera infantum, cholera morbus, diarrhœa, and dysentery, the mucous epithelia discharged in the stools do not give the whitish appearance of choleraïc liquid. Some eminent pathologists contend that the stools of cholera patients contain no albumen. In the epidemic of 1848–9, in New Orleans, the experiment of boiling, as made on several occasions by myself and others, showed the coagulability, that is, the increased whiteness, opacity and turbidity of the liquid found in the bowels a few minutes after death. The physical appearance of this liquid resembles that which is often met with in albuminuria with the dropsical effusion. After the liquid drawn off in ascitis has been heated to the boiling point, it loses its transparency, becomes uniformly white, and affords analogous, though exaggerated appearances, as compared with the most intense whitishness met with in the choleraïc liquid. In certain cases of albuminuria, there is nothing more than mere milkiness, while in other cases I have found a soft, coagulated mass figured by the containing vessel, and contracted like the clot which forms in the serum of the blood. During convalescence it sometimes will be seen that this whitish liquid is much inspissated. It may be coagulated or semi-solid.

In some cases of suddenly arrested cholera, a large quantity of liquid may be detected by the touch in the bowels. This choleraïc effusion, however, gradually disappears with the returning powers of intestinal absorption. The convalescent may be for a time constipated; the first evacuations may be of various colors, or they may be inspissated and whitish, as already mentioned.

Whether the choleraïc liquid be in part a reflow or effusion of chyle from the thoracic duct and its branches, or from the lymphatics, or an albuminoid serosity from the capillaries, or a product *sui generis*, I will not pretend to say; nevertheless, it does not appear to receive its color wholly from shreds of epithelium. I have, in this disease, but I believe never in any other, found this liquid in the pelves of the kidneys, some-

times in the fallopian tubes, in the corpora lutea of the ovaries; but after sudden death without reäction, it is found almost always in the bladder, though in small quantities, varying from ten to fifty drops, more or less, being more concentrated or milky ,and less watery than the liquid usually found in the bowels. It is true that epithelia exist in these organs too, but if their exuviæ could produce a white liquid like that found in cholera, such liquid would often, if not constantly, be expected in all bodies, and the more so as the exuviation of the epithelium is a normal and constant physiological process, probably more active than the exfoliation of the epidermis. The inner layer of the mucous surface is thus thrown perpetually off into the canal as effete, by the subjacent layer which takes its place. The metamorphosis and renewal is constantly going on during life. In some forms of disease, particularly in such as produce a flux from the bowels, these *débris*, shreds, and membraniform exfoliations abound, indicating a morbidly active condition, the waste in the economy exceeding the repair.

It is possible that cholera might prove fatal without either vomiting or purging. Thus, M. Cruvielhier mentions a case, in his *Livraison* on cholera, that of a pregnant woman, near the period of her confinement, who had, on the day of her death, all the symptoms of cholera, except vomiting and stools; she was blue, cold, cramped, etc., for two days before her death. After death, the large intestine was found enormously distended with rice-water liquid. The quantity of liquid which the bowels may contain without risk of rupture or excessive distension is enormous. I have injected in the dead body eight pints of liquid in the lower third or fourth of the bowels, that is below the valve of the cæcum, which merely filled the cæcum, the colon, and rectum. Now suppose that the residue of the bowels, including the stomach, should contain twenty-two pounds, in all thirty pounds, there will then be, perhaps, three or four times more choleraic liquid parted from the blood. than will suffice to bring on fatal collapse.

In fact, it has been asserted that collapse has supervened, and that death has taken place without any choleraïc evacuation, and without any cramps having taken place. Some have called this *dry* cholera, thunder and lightning cholera, death being caused, as they affirm, by innervation! But these mysterious words, vaguely applied to a doubtful thing, having, perhaps, no existence but an imaginary, undefinable one, afford an unsatisfactory explanation, not confirmed by autopsy. It is highly probable in all of these cases, assuming them to be true, that a post-mortem examination would have revealed abundance of choleraïc liquid in the alimentary canal, though none had been discharged, owing

to some unusual cause, as spasmodic contraction of the sphincter ani, or some portion of the intestine, not to mention the possibility of intussusception, all of which I have witnessed in the living or dead.

Hence it may be inferred that the mechanical methods of arresting the choleraïc discharges, which, according to rumor, have been sometimes adopted, must fail. In 1842, a gentleman formerly of Havana informed me that during his residence in that city, while the cholera was prevailing, in one of the hospitals where certain medical students or bachelors of medicine were appointed to render medical services to choleriques, a debate arose upon the propriety of forcibly stopping the anus by means of corks, and that the question was decided in the affirmative. It was concluded that death was caused by the enormous discharges, which mechanical means might arrest. It was tried but the result was not known to my informant, but may readily be imagined. A more plausible method there is reason or at least a rumor for believing was tried a few years ago in New Orleans, namely, the plugging of the rectum and anus with medicated cotton. If, however, the closure of the anus could be completely effected, hermetically sealed, there would remain ample room in the bowels for an enormous quantity of the choleraïc liquid, while an invetted peristaltic action of the alimentary canal would be likely to empty itself by the mouth, as hernial and other mechanical obstructions prove.

CARBON. CARBONIC ACID. BILE.

The agency of carbon, carbonic acid, or hydrocarbon, upon the rise and progress of cholera asphyxia, is probably paramount. Whether this be the cause or effect of the disease is not known, though this agent must be deleterious, whether its action be primary or consecutive. Hence, a few remarks, though, in part speculative, may be allowable in the absence of an established theory of the causation of cholera. Why should probability be rejected, because certainty is as yet unattainable? If the causes of phenomena be veiled, the phenomena themselves must be accepted as objects of study, instead of the former. If the first link of the chain cannot be traced, this is no reason why the whole chain should be tumbled into a confused heap, and be abandoned in despair. It should be straightened out. It may serve the purpose of a cable, wherewith to make fast while exploring the uncertain coasts of ætiology.

If all other means of accounting for danger or death in cholera were to fail, the actual or the virtual asphyxia which characterizes this disease, would, to a great extent, afford a satisfactory solution. Blood is the carrier of oxygen, and as it is but partially oxidated or arterialized

in the respiratory process, in cholera, it is unfit for, nay, poisonous to the entire animal economy, as carbonic acid is known to be. The bluish tint of the surface of the body in cholera, often surpasses that which is seen in fatal asphyxia and strangulation by hanging. In this disease, the physiological equilibrium between arterial and venous blood no longer exists, the normally thin blood is replaced by thick, red by black, oxidated by deoxidated. But even if the blood were thoroughly oxidated, deoxidated, and oxidated again in the lungs, its quantity being diminished while its viscosity is increased by the choleraïc discharges, and its circulation therefore impeded; its power, as a carrier of oxygen, must be proportionally inefficient. Here the quantity of oxygen and the number of its carriers are diminished throughout the circle of the organs, from the centre to the periphery, and, consequently, the carbon is not parted from the economy in the normal degree and manner.

"Liebig calculates that an adult male, taking moderate exercise, loses 13.9 ounces of carbon daily from the lungs and skin. In order to convert this large quantity of carbon into carbonic acid, 37 ounces of oxygen must be absorbed during the same period by the lungs and skin; but this estimate is doubtless too high."—(Todd and Bowman, *Phys. Anat.*)

The absence of bile in the choleraïc excretæ is a very significant fact. The non-elimination of this hydro-carbon from the liver, that is, this absence of bile, in connection with the probable inability of the lungs to part the carbon from the animal tissues, and particularly from the blood in the pulmonary circulation, all go to explain the dark color of the skin and blood, and the impending danger and mortal tendency of this disease.

Experimental physiologists have estimated the quantity of bile in health, at three or four pounds per day! Prof. Carpenter quotes and adopts the experimental conclusions of MM. Bidder and Schmidt, who affirm that the daily amount of bile secreted by man is not less than 56 ounces. Only the sulphuretted and effete part of this bile is, however, excreted with the fæces, the residue being depurated, is presented to the absorbents, reëntering the economy by the lacteals, is supposed to aid in the assimilative processes for the making of sugar, fat, and blood, contributing to general nutrition.

The non-secretion and non-excretion then, of so large a quantity of hydrocarbon, must, it is reasonable to suppose from analogy, exercise a deleterious effect upon the animal economy, particularly upon the blood, giving rise, in part at least, to the symptoms which have conspired to give this disease the characteristic name of cholera asphyxia. This

name, however, has a more special and appropriate connection with the deranged functions of the respiratory organs. The imperfect manner in which respiration proceeds in cholera is remarkable, though it seems to have attracted little attention, either as a symptom or as a chemical phenomenon.

Prof. Lehmann quotes the following statement from Doyère, "who repeatedly examined the air expired by a young girl that had cholera, and continued his observations till the death of the patient; he found that the excretion of carbonic acid was generally much diminished in this disease, and that this excretion was augmented as soon as the general condition of the patient improved."—(*Phys. Chem.*, ii, 471.) This result, though not sufficiently established by a single case, is confirmed by analogical reasoning, as neither the full oxidation of the blood, nor the complete elimination of carbonic acid could be expected to take place in the lungs in fully developed cholera, inasmuch as these organs are comparatively torpid; respiration is small and quick, not full; the chest neither expands nor collapses, as in healthful inspiration and expiration. The lungs are often found collapsed, as if they had been paralized or had fallen into comparative disuse before death.

The failure or obstruction of the general, and more especially of the pulmonic capillary circulation, must necessarily prevent the oxidation of the blood, the common carrier of oxygen to the nervous and every other tissue, from the centre to the circumference. It is probable that the material cause of cholera first acts on the blood in the lungs, and through the blood on the whole system. Whether this cause primarily tends to produce carbonaceous deterioration, or whether the latter is secondary in the progress of the disease, may be questionable, but the physical change giving the periphery of the body a dark, cyanosed hue, is not a matter of doubt. This dusky, cerulian, or leaden tint, is more pronounced in many cases of cholera, than it is found to be in the features of executed criminals just after having been hung.

CONJECTURES ON URÆMIA AND ENDOSMOSIS IN CHOLERA.

Cholera is probably due to a single cause or simple poison, which, however, being as yet unknown, except through its mere phenomenal history, it becomes necessary to adopt another view of the causation of the disease, whereby the primary symptoms virtually become the cause or causes, though really effects only. Morbid as well as physical causes may be simple or compound. Thus several causes may jointly combine to produce an effect which neither can produce *per se*. For therapeutic purposes, at least, the primary symptoms and the cause of cholera must be viewed as identical.

With the first choleraïc discharges, the urinary secretion begins to diminish, and as the disease progresses, it is wholly suppressed. Now this suppression, though an effect of an unknown antecedent, is not for that reason the less important.

The poisoning of the system from non-excreted urea or some of its intercurrent combinations with other elements in the blood, giving rise to uræmia, constitutes a branch of pathology, which is at least, suggestive, in relation to cholera, and deserves further investigation, and the more so, as the specific cause and the primordial mode in which this cause acts upon the economy elude observation.

Prof. Lehmann says that " the rice-water matters vomited in cholera, both in their physical and chemical properties, are almost perfectly identical with the matters often vomited in uræmia; they are usually of a faint, sickly odor, and their reäction may be either acid, neutral or alkaline; on standing, they deposit grayish-white flakes, consisting of epithelial structures or intestinal mucus, while the fluid above, appears clear and yellowish, containing a relatively large amount of inorganic salts, and especially of the chloride of sodium. For a short time after the beginning of the disease, the vomited matter is acid, and I found in it, as Hermann had done, butyric and ascetic acids. When the fluid contained no remains of food, but resembled rice-water, and was acid or neutral, I constantly found urea, and can thus confirm the observations of Schmidt. If, on the other hand, the disease was further advanced, and the cerebral symptoms accompanying uræmia had set in, and if vomiting now came on, salts of ammonia, and especially the carbonate, were found, and hence the fluid had an alkaline reäction. Albumen occurs only in very small quantities when the fluid is acid, but in larger quantities when there is an alkaline reäction."—(*Phys. Chem.*, i, 529.)

The non-secretion and non-excretion of urine in cholera is a very prominent, significant and constant phenomenon. The secretion of urine, in health, amounting to nearly three pounds per day, is generally regarded as a dupuration of the blood, including effete, nitrogenous, carbonaceous, excrementitious salts and substances, amounting in health to several hundred grains of solid matter daily, the retention or non-elimination of which could not fail, analogically speaking, to prove deleterious. If these matters should not directly poison the blood, they might be expected to irritate the capillary, nervous, muscular and mucous tissues. It is possible that uræmia may be the forerunner or even a cause of cholera. The sudden and complete suppression of urine, affords a presumption, in the absence of satisfactory proof to the contrary, and in the absence of any specific known cause of cholera, that the uræmic poisoning may exist, either as the precursor, cause, or intercurrent effect.

The complete absence of urine in the urinary bladder, as proved by the catheter, during life, and by examination after death, can scarcely be accounted for, without supposing that this fluid has been sometimes resorbed from the bladder as fast as secreted by the kidneys anterior to its total suppression, otherwise, a quantity, how small soever the secretion may have been before the stage of collapse, would be found; instead of which, very often there is not a drop. Sometimes, or rather in a majority of choleraïc cadavera, a few drops of milky liquid are found in the bladder, kidneys and ureters, having neither the color, odor, nor appearance of urine. It may be doubted whether the voluntary emission of urine in health, can so completely empty this organ, as it is found to be in cholera. The resorption of urine which may be in the bladder at the inception of cholera, or that may be secreted during the early stage of the disease, if proven, would afford two strong presumptions of high import, namely, the probability of uræmic poisoning from this source, and next, the probability that medicinal solutions might, in like manner, be taken up and carried into the circulation, without which, a remedy, how efficacious soever it may be, in general, can avail little or nothing in this malady.

Pathological chemists acknowledge that with their present means of research, it is difficult to appreciate the uræmic condition of the blood. Lehmann says: "Physiologists were long undecided regarding the seat of the actual formation of urea. Since urea had not been discovered in the normal blood, many believed and they still adhere to the old view, that the excreta are formed in the excreting organs from the constituents of the blood, and that urea is thus first produced in the kidneys. They accounted for the circumstance that urea is, in certain morbid conditions, sometimes found in the blood and other fluids, by assuming that it was then resorbed from the kidneys and urinary bladder. To overthrow this opinion, Prevost and Dumas, and, subsequently, Gmelin, Tiedmann and Mitscherlich, extirpated the kidneys of animals, and then found no inconsiderable quantity of urea in the blood; indeed, Marchand induced all the symptoms of uræmia in a dog, by the mere ligature of the renal nerves, and was able to recognize the presence of urea with the greatest certainty, not only in the blood, but also in the vomited matters.

"The investigations of Marchand have thrown much light upon this subject; this accurate observer could only recover 0.2 of a gramme of urea from 200 grammes of serum, to which 1 gramme of urea had been added; he shows that, even if the urea were only separated from the blood at the end of each successive hour, it could not have accu-

mulated in such quantity as to have been discoverable by the present mode of investigation. The following consideration will give us an idea of the small quantity of urea, which, according to Marchand's hypothesis, at the most, that can accumulate in one hour. From the experiments of Ed. Weber, which I have in part confirmed, we may assume that there are in an adult man, at most, 6 or 7 kilogrammes [16 to 19 pounds] of circulating blood; now, if in 24 hours 30 grammes of urea are discharged, at most only 1.25 grammes could accumulate in one hour in the whole mass of the blood. This minute quantity can, however, only be detected in operating on very large masses of blood, and by the aid of the microscope. If we should inquire—from what substances is it produced, and what tissues principally contribute to its formation? we could not, in the present state of our knowledge, give any satisfactory answers to these questions."—(*Phys. Chem.*, i, 155–6.)

"Urea constitutes nearly half of the solid matter of healthy urine; a large proportion of urea is derived from the disintegration of the tissues by the process of secondary assimilation. There can be little doubt that urea is formed in the blood by the action of oxygen upon lithic acid, creatine, and, possibly, upon some of the matters comprehended under the indefinite term of extractive matter. In cases where the expiratory function is impaired, the amount of uric acid has been found to be abnormally increased. There appears ample evidence to show that lithic acid is one of the purely excrementitious substances derived from the disintegration of the tissues, and formed by the action of oxygen upon effete material. *Urea has been detected in the blood of patients suffering from cholera.*"—(*Phys. Anat.* Todd & Bowman. 1857.) Simon says "that in the blood of choleraïc patients, he and others have found urea."—(*Chem. Man.*, 265.) Vogel affirms that "in healthy blood urea occurs in such minute quantity, as scarcely to admit of detection."

It is true, that as yet, no remedy is known for this non-elimination or suppression. The secretion and excretion return with the subsidence of its associated or contemporaneous symptoms. As medicines given internally are usually not retained, or if retained, they are not absorbed, diuretics cannot be relied on. Seeing, therefore, as before suggested, that in severe cases of cholera, medicines are generally either vomited or washed away in the stools, might not the bladder and urethra become, to some extent, the media of medication for the general system? Might not medicinal solutions of morphia and the like, be introduced, retained, and absorbed? The violent exosmosis or transudation from the alimentary canal in cholera, affords no positive proof that either endosmosis or exosmosis is impossible in the urinary apparatus, and the more so, because

this apparatus appears natural, though contracted from the absence of a distending body. This thickness of the parietes of the bladder in cholera is then, natural in the absence of urine. The bladder being empty, is contracted, and being contracted, it is, necessarily, thick and massive, but not, therefore, morbidly altered. This organ exhibits, out of the body, the endosmotic action with energy, being generally preferred for experimental purposes.

CHOLERAÏC ALGIDITY.

The cholera-producing cause induces a positive algidity of a very peculiar character, very little analogous to the common morbid influences of the privation of heat, from the low temperature of the surrounding media, as witnessed in the arctic regions, and in other cold latitudes, where, as in the campaigns in Russia, in 1812–13, under Napoleon I, hundreds of thousands perished amid the snows of Russia. The choleraïc cold, unlike merely physical cold, has no subjective reality; in the former, the patient feels even a burning heat, in the latter, cold only. Cold from the surrounding media produces both subjective and objective refrigeration; whereas, the pathological cold of cholera has, as already indicated, only one of these tests, namely, the objective, as proved by the thermometer and by the touch, while the subjective or senational criterion is wholly absent.

Both choleraïc and physical cold produce, according to their intensity, contraction and shrinking of the animal tissues; but in cholera, the contraction and shrivelling are probably much greater than in even congelation resulting from the abstraction of the animal heat. The condensation or hardness of a part thoroughly frozen, is, of course, wholly unlike anything witnessed in cholera.

Choleraïc cold probably diminishes the power of absorption, which cannot be said of physical cold within a certain limit, for in cold climates, digestion and absorption appear to be very active; in both, the capillary circulation is obstructed, and asphyxia is often witnessed, and great thirst also is common to each.

The cold of cholera is as great in summer as in winter. In the hottest weather the expired air from the lungs is often very cool, doubtlessly many degrees below that of the atmosphere or the body in health.

The absence of subjective algidity, that is, the absence of the sensation of coldness, has probably contributed to the underrating of this condition as an element in the ætiology and pathology of cholera. The objective validity of this algidity is, as all know, real, and may be tested by the thermometer, and being real, whether as an original or secondary element of cholera, it must, upon physical principles, exercise a powerful

influence upon the economy; upon the capillary, vascular, cutaneous, glandular, muscular, and nervous systems, contracting and shrivelling the surface, and forcing the blood towards the more yielding centre, causing, it may be rationally supposed, a mechanical pressure, whereby the thin or serous portion of the blood transudes through the mucous membranes.

That there is something peculiar in this coldness, not readily explicable upon merely physical principles, would seem reasonable, from the fact, which is often seen after death, namely, a rise of temperature, several, sometimes many degrees beyond that of health.

Dr. E. A. Parkes, of London, a few years since, maintained that "the proper and distinctive symptom of cholera, is a diminution of temperature of the whole body. The algid symptoms are, in fact, the disease; in proportion to them is the malignity and rapidity of the case; they afford the only measure of its severity, and from them only can a correct prognosis be formed. Whence it follows, that vomiting, purging, and cramps, must be considered merely as usual but non-essential symptoms of cholera, whose absence would not in the least affect the diagnosis of the disease; and that, consequently, it is within the bounds of possibility, or even probability, that cases may occur entirely divested of these symptoms."

Dr. Monneret, who went to Constantinople in 1847, to study the cholera then prevalent, found that the disease run its course in from two to twelve hours in many cases; the temperature, when cramps occurred, fell in the axilla to 66° or 67° Fah. How can this refrigeration of the body be explained? Chemically speaking, it might be supposed that cutaneous transpiration, or sweating, and the secretion or excretion, or effusion of the choleraïc liquid into the alimentary canal, together with perspiration and evaporation from the skin, might reduce the temperature, as evaporation and liquefaction are known to do, by absorbing or rendering latent free caloric. As fluids in becoming solids, give out heat, so the solids in becoming liquid, or parting with the latter, absorb or render heat latent, so it might be supposed that the liquefaction going on among the solids, in cholera, would cause a rapid refrigeration, especially when it is considered that the great process of nutrition is not only arrested but reversed, and with it the creation or evolution of heat, during the apparently rapid emaciation resulting from choleraïc discharges. The supply of free heat is arrested; its waste augmented. The absorption of oxygen, nutriment, and medicine is diminished or destroyed, while a rapid, wasting metamorphosis or decomposing process takes place—a real decomposition,

without the usual fermentation and fœtid gases and ordinary appearances, called putrefaction. Thus there is not only no assimilation, but an enormous and sudden waste—a process, similar in effect to that of withholding air and food from an animal, and at the same time extracting its blood rapidly.

This is rendered more or less probable by taking another route, namely, that of post-mortem observation. After death—after the morbid agent has done its worst—after the cessation of pathological waste, sensible and insensible perspiration, and choleraïc liquefaction or exudation, the heat very often, if not always returns, sometimes continuing for hours, sometimes reaching much higher than the normal standard, as may be seen by referring to my papers on animal heat in both living and dead bodies, reported *in extenso*, in this Journal. See vols. XII, XIII.

Admit provisionally, seeing no plausible explanation has been given of algidity in cholera, that animal heat is the resultant of a certain ratio of metamorphosis or nutrition in all of the animal tissues—or suppose that nutrition, repair, or composition is suspended in cholera, waste or decomposition vastly preponderating, and then, it will follow naturally, that coldness must ensue, with corrugation, contraction and collapse. Admit, again, that respiration is a refrigeratory process, that cutaneous transpirations in the form of vapor, sweat and clammy exudation, including serous discharges from the bowels, all have the same tendency, then, it will follow that, as these functions cease at death, heat might be developed for a time, provided the nutritive action does not wholly cease simultaneously with the wasting process which death arrests temporarily before putrefaction begins. Without dwelling upon the evidence of an analogical character, drawn from the vestiges of persisting physiological action found in cadavera after sensuous death, as witnessed in post-mortem muscular contractility, capillary circulation and the like, it is sufficient to allude to certain facts often seen in cholera cadavera, namely, diminished wrinkling and collapse of the skin of the fingers and of the whole body; also returning plumpness of the corpse, fulness of the veins, with, in some cases, an approximation towards the natural color of the surface, all of which suggest, if they do not demonstrate a remnant of reparative or vital action in the tissues, for a time after death has suspended the morbid refrigeratory action.

In any case, the respiratory origin of animal heat fails to account for its development, long duration, and the remarkably unique laws in many dead bodies, all being in contrast with the following exposition, so far as the respiratory theory of animal heat is concerned: "In every in-

stance we assert that the production of animal heat is due to oxidation taking place in the economy, and giving rise to carbonic acid, and other collateral products. Although we cannot interfere with the rate of respiration, we can affect the quantity of air introduced into the system by artificial means, as in the operation of blood-letting; for, although, after blood has been drawn we may make the normal number of respirations seventeen in a minute, for each introduce seventeen cubic inches of air, we have diminished the number of discs, which are the carriers of oxygen; and, as the experience of physicians in all times has shown, there is no method so effectual in reducing any unusual or febrile temperature. So in like manner, in Asiatic cholera, the marble coldness which the body presents, is attributable to the loss of function of the discs, and consequent abatement in the quantity of oxygen introduced." (Draper, *Phys.*, 182, 184.)

The Newtonian law of the increment and decrement of heat, applies neither to recently dead, nor to living human bodies. The ratio of calorification and refrigeration of such bodies in a given medium does not follow, the physical law by which equal increments and equal decrements occur in equal times, until a calorific equilibrium is established. I have shown, by an immense number of experiments upon the healthy, diseased, and recently dead bodies, that this physical law does not hold good in the domain of physiology and pathology.

Suppose the human body to be immersed in water so that it shall be frozen into a solid mass throughout, and that the surrounding media shall arise to 100°, the body will rise in temperature, becoming heated from the surface towards the centre, in a certain ratio, until it shall correspond to its environments. But in cholera, this does not happen, for, however warm the weather may be, the patient's temperature is often more than 20° lower. On the contrary, although the weather or surrounding media may be below freezing, the dead body may, and often does arise to 100° and 110°, or 68° to 78° higher, which a human statue of stone or brass would not do agreeably to the physical law of caloric.

In cholera, free heat, in what form soever it may be applied, seems to become latent, as in the melting of ice, without permanently heating the mass itself. The hot vapor bath from burning alcohol, confined around the patient's body by the bed-clothes and a frame of hoops, appears to augment the sensible perspiration without augmenting the general temperature of the body. Hot baths and other hot bodies do not make the patient warm. A real heating would, upon physical principles, cause expansion, whereas the contraction or wrinkling of the body still con-

tinues after the artificial application of heat. The thermometer shows, also, that the abnormal algidity cannot be permanently removed by art in severe cases of cholera. This is one among many instances, showing that cosmical or physical laws are not always identical with those of vitality in sickness and in health. Nevertheless, these mutually illustrate each other.

Upon the whole, it appears that the extraordinary refrigeration which takes place in algid cholera, is explicable, to some extent, upon both physiological and physical principles. Sensible and insensible perspirations from the skin, together with a sudden *quasi* liquefaction or parting of fluids from the blood and solids, ought, upon theoretical principles, to produce refrigeration in the animal economy.

The physician, when called to see cases in which the arteries and veins have been cut, will often find, after almost fatal hæmorrhages, that violent vomitings and purgings, together with pallor, shrinking and coldness of the skin will have occurred. In these cases, as in cholera, thirst is excessive, and constantly augments with the loss of blood. Water! water! is the cry of the fallen, bleeding soldier on the battle-field.

In a word, let the cause of algidity be what it may, there can be no doubt whatever that its agency upon the gases, liquids, and solids, and their chemical and physiological combinations and conditions, must be great, paramount, dangerous. The application of cold to a healthful individual, so as to corrugate his surface, shrivel his extremities, and lower his natural temperature from 20° to 30°, making even the tongue and breath cold, would scarcely fail to be fatal, independently of the wasting discharges and other symptoms of cholera.

PATHOLOGICAL OBSERVATIONS.

If cholera were represented by no internal lesions discoverable *post mortem* by the anatomist, still its representation by symptoms and by external alterations before death explain, to a great extent, beyond peradventure, its character and its fatal march. Its lesions, functional and material, are even during life striking in an extraordinary degree, for their prominence and their universality, while the alterations of central organs as found after death are various, of uncertain seat and scarcely appreciable in some cases as being truly characteristic of the malady.

In cholera, death may obliterate lesions upon the surface, and, *à fortiori* in the centres. Icy coldness gives place to heat, venous collapse to venous turgidity, blueness to pallor or dusky flushing, and shrivelling to plumpness. Even the muscles which had been in repose before, or at death,

may afterwards become agitated with contractions and twitchings for hours. The withered, shrunken body, limbs, fingers, etc., no longer in the grasp of the disease, augment in size or recover their volume. The viscous sweat gives place to a more natural condition of the skin. The putrefaction of the choleraïc body is slow. The intestines are generally free from offensive matters and gases.

There is often at the inception of cholera a slight chilliness, (of which the patient seldom complains) accompanied with yawning, and probably with congestion. The nasal passages after a time, become, in some cases, stuffed or obstructed, not by mucosity but from congestion of the mucous membrane as in incipient catarrh, which, without any marked secretion or excretion, disappears in a few hours or when the disease is arrested.

The suppression or rather the alteration of the salivary secretion is usual and early in cholera. The mouth if not dry, is moistened with a watery rather than a salivary liquid.

The physical and physiological law of exosmosis and endosmosis or its compensating normal equilibrium, appears to be changed in cholera, that is, exosmosis is greatly increased, endosmosis greatly diminished, as regards the alimentary canal at least.

It may not be possible to show how the specific cause of cholera acts in changing the normal affinities between septa and the fluids, between the serum of the blood and the mucous membranes, so as to give morbid or deranged exosmotic and endosmotic actions. Such actions doubtlessly exist. Cholera, if this view be correct, may be called an abnormal or *hyper-exosmosis* of the alimentary canal.

Independently of any evidence resulting from post mortem examination, cholera is from first to last attended with inequilibrium of the circulation, (virtually a congestion,) as is evident from the physical aspect of the disease. This, like some other morbid changes, as for instance shrinkage, coldness, is greater during life than soon afterward. Even if the general system and the individual organs should be found after death comparatively free from engorgements and unequal distributions of blood, this condition may have been brought about by the enormous discharges of serum from the blood during life, and by the post-mortem action of the capillaries of the periphery, whereby the central vessels have been relieved from congestion.

The tissues of the circumference, skin, arteries, veins and capillaries are not distended with blood, as in the healthy state, while central congestion, irritation, and exhalation or effusion consisting of the serosity of the blood, takes place into the digestive tube. This condition, increasing the disease, increases; abating, the disease abates.

This supposed congestive character of cholera would lead the pathologist to expect that the spleen, a spongy, vascular, distensible organ, would be found engorged with blood. This is not the condition of the spleen as found soon after death. Indeed, the contrary condition prevails to an extent not found perhaps in any other acute disease. The spleen is frequently pale, very supple, shrivelled, greatly diminished in size, (one-half in some cases,) and, comparatively, anæmic. The choleraïc discharges seem, therefore, in many cases, to reduce the spleen, in size, color, and brittleness. How this exosmotic anæmia of the spleen happens, remains to be discovered. Although this condition is far from being constant, yet it is probably peculiar to this malady.

All diseases are, of course, to a certain extent, similar or identical, otherwise they could not be referred to under the genera of diseases. The separation and classification proceed by identities, analogies, and differentiations.

Cholera resembles pernicious intermittents and congestive algid fever much more than yellow and typhus fevers, but at the same time presents well-marked differentiæ.

The living lesions upon the surface of the body in cholera, as already stated, are very striking and characteristic, and their possible diminution or obliteration after death, must not be forgotten by the pathological anatomist; color, temperature, skin, and the physical appearance of the cadaver are, in many instances, for a time, more natural than during the last stage of the disease.

The pathology of cholera may be in part explicable by referring it to a violent waste of nutrition, virtually an acute starvation throughout the entire economy. Here the whole circle of the dynamical nutritive actions are not only suddenly arrested, but absolutely inverted, virtually starved by rapid wastage and decomposition among the nutritive elements of both liquids and solids.

In health, waste and repair are, physiologically, *in equilibrio*, that is, the morphological and reparative processes sustain a definite relation to each other. In cholera, there is not only an interruption to, but a sudden extinction of nutrition, decomposition replaces and overpowers composition—carbon, oxygen—waste, repair—retrogression, progression—pathology, physiology—death, life.

The pathology of cholera admits of illustration, by viewing it as a virtual hæmorrhage or effusion of the colorless portion of the blood. Experimental investigators have proved that the choleraïc liquid is virtually identical with the serosity of the blood, from which latter it is parted by the cholera-producing poison, and with a rapidity too, seldom

witnessed in hæmorrhages proper, from the lungs, bowels, stomach, kidneys, uterus, etc.

The chemical, dynamical and vital properties of the blood, thus deprived of its serosity, are greatly changed, and their relative proportions and chemical combinations altered. The blood becomes viscous, dense, dark, poisoned, carbonized, and its circulation in the capillaries diminished or arrested.

Cholera viewed in the light of a dynamic or spasmodic disease, is nearly allied to convulsion, or even to tetanus, which is supposed to affect the nervous system chiefly. It certainly affects the muscular system. Repeated spasms are not only extremely painful, but they tend, upon mechanical principles, to obstruct the circulation in some parts of the system, while they rapidly exhaust the vital and muscular energies.

Nearly three months before the second great invasion of cholera, I made the following note in MS. vol. XIX: Cramps (now Sept. 26th, 1848,) appear to be very common, both idiopathically, and symptomatically in fevers.

The following case of cramps was one of great severity, and came nigh a fatal termination: 1848, Sept. 25th. C. M., Irish laborer; aged 35; resident five years; was seized with violent cramps in his limbs, extending to his fingers, etc., towards the close of the day, while carrying sacks of salt on the levee. His comrade was similarly but more slightly affected. M. walked home at 6, P. M., a distance of three miles, suffering much; was pale, vomited, and had a second defecation for the day. In two hours after, I saw him, the cramps were almost constant, though the paroxysms were greatly augmented at intervals, like explosions. Five or six persons rubbed him; others applied clothes dipped in hot water to his limbs and body, which he said afforded temporary relief; his pulse was irregular, rapid, small, feeble; respiration laborious and unequal. His skin pale, bathed in profuse perspirations, was bloodless, wrinkled, and excessively shrunken. His screams were terrifying; senses natural. Morph. sulph. gr. ij; quin. sulph. gr. x; in two ounces syrup; one-third given at once. This dose soon arrested the cramps for some hours; another third he took in the night.

September 26th. Used the remaining third of the syrup; also baths. He had slight cramps; eyes red, injected and almost ecchymosed; skin filled up with blood; was somewhat hot; nausea and vomiting.

There can be little doubt that in a few hours the cramps would have proved fatal, if they had not been arrested. (Another patient, two days sick, affected with remittent, suffered during the same night at

Gretna, with cramps which caused him to get up, walk, and remain out of bed nearly all night.)

27th. He is convalescent.

In the following case, copied from the same MS. vol., the spasms appeared to have been the immediate cause of death: May 31, 1849: Called, 1, P. M., on board of the British ship, Woodstock, two weeks in port, to see J. an English seaman, aged 35, who had continued to work until 9, A. M., though he had had diarrhœa for six or seven hours before cramps and vomiting took place. Pulse small, variable, generally quick; skin cool, moist; face dusky; hands wrinkled, shrunken; eyes sunken and inclosed in dark circles; thirst; tongue clean; cramps almost universal, being severest in the legs at first, then in the thighs, appearing to reach to the diaphragm, chest, and belly; had a fluid stool soon after my arrival.

I gave an enema of laudanum, undiluted, about ℥ss, after which he had no more stools, nor had he any narcotism; five or six tablespoons-full of mustard given in rapid succession; vomited only twice, after which cal., quin., and camphor were given every fifteen minutes until four large doses were given; they appeared to produce no effect; were not vomited. In two hours five doses of spt. lav., brandy, quinine, tinc. opii were given, and repeated but without any apparent result.

As the cramps were severe, universal, and almost incessant, and, as all the ships' company and bystanders were in favor of friction, including the patient himself, it was determined to give this a fair trial. Six sailors rubbed him with but slight intermissions until he died. The rubbing was of the most powerful kind over the whole body, but the patient demanded it more and more. For two hours a liniment of ol. terebin., mustard, red pepper, and vol. alcali was rubbed in abundance; the skin became red, yet the pulse grew worse, the skin and tongue colder, and the cramps increased. Blankets next were wrung out of hot water and applied every five minutes; but the tongue became almost icy-cold; the pulse failed; asphyxia increased.

The mind, in the meantime, remained clear. Neither the opiates nor the stimulants produced their characteristic effects. Hence, it may be inferred that they were not absorbed.

The violent frictions were continued at his request as they gave him some relief. The collapse, in the meanwhile, increasing until 7, P. M., when, six hours from the supposed commencement of his disease, death closed the scene of suffering from cramps and spasms, the severity of which language cannot describe.

Here death seemed to result, not from the discharges, which were

slight, but from the violent spasms of the entire muscular system, limbs, trunk, centre, circumference. Probably the diaphragm and heart, as well as the abdominal muscles, were affected with these tetanic convulsions.

(*To be continued.*)

ART. IV.—*Sudden suppression of the Menses.* From the case-book of the late Dr. A. HESTER.

MADAM * * *; married, but no children; aged about 38 or 40 years, was seized January 9th, about 10, A. M., with sudden suppression of her courses, without any assignable cause. Found her with legs flexed, complaining of violent spasmodic pains around the umbilicus, attended with total suppression; constipation; frequent, but ineffectual efforts to make water, attended with bearing down pains, nausea and vomiting; pulse regular, soft, and numbering about 70; tongue nearly natural; but little thirst; skin not hot; described the pain as radiating from umbilicus to *scrobiculus cordis*, and to *pubis;* could not bear the slightest pressure over any part of the abdomen, which was slightly distended. Had taken rice water, but threw it up. Ordered hot fomentation to abdomen, warm hip-bath, an enema of cast. oil.

Evening, 5 o'clock; some relief from fomentation and hip bath, enema did not operate; still tender over abdomen, so much so, as to shrink on the slightest touch; pulse about 80, and soft, no tension. Ordered forty good leeches to hypogast. and around umbilical region, to be followed by hot emoll. cataplasm to encourage the flow of blood; and take this pill: ℞. Calomel, gr. x: ext. rhei, gr. vij; *m.*; pills, no. IV.

January 10th. 8, A. M. Leeches produced slight relief; poultices were not continued long enough; pains returned about 12, M., took a dose of laudanum; repeated hip-bath. Find tongue rather red at tip and on edges; there is slight cephalalgia; took oil this morning and vomited it up; pulse rather quick, about 85, but soft; nausea; bad taste in mouth; no operation; slight show of the courses. Still great tenderness and hardness over epigast. and abdomen generally; less pain in urinating. This lady is subject to severe attacks of *bilious colic,* from time to time. Ordered sulph. morph. gr. j; carb. sodæ ℨi; aquæ menth. ℥iv; aquæ

font. f℥iij; M. Tablespoonful to allay nausea and check vomiting, which cause so much distress by the contraction of abdominal muscles. Hot emoll. cataplasms to abdomen. Enema of infus. sennæ and sulph. magnes.; toastwater.

Evening. No better; nausea and occasional vomiting; dysury; thirst; tongue rather red at point; pulse about 90, and rather hard, and wiry; skin moist; general hardness and tenderness of abdomen; lies with legs drawn up; great tenderness over the spine in the lumbar and sacral regions; no operation from bowels; no signs of menstrual flow, since this morning. Took the morphine mixt. but once or twice; applied the cataplasms. Ordered this evening; v. s. *ad* f℥x vel xii; *cucurb. cruent. ad regi. sacr. et lumb. ad* f℥x *vel* xii; and to take calomel gr. xv; comp. ext. colocynth. gr. v; F. pills no. IV; one every two hours; at 3, A. M., if no operation, enema of flax-seed tea; continued cataplasm to abdomen; warm, dry applications to feet.

January 11th. Blood was drawn, and was soon followed by a large evacuation from the bowels; then the cups were applied. Considerable relief ensued; the pills were given as directed, but no evacuation produced after the one already mentioned. About day-light this morning, the pains were renewed, and finally centered upon the uterus and bladder, causing bearing down pains, efforts to urinate, cramps in the thighs, and pains across the loins. Thirst; small, frequent, and rapid pulse; skin warm and moist; countenance pale and indicative of great suffering; still tender over abdomen. Ordered constant *hot fomentations* to hypogastric region; an enema of 100 drops tinct. opii, in solution of starch; continue morph. mixt. and soda. Left directions that if these means did not produce relief at the end of one hour, leeches were to be applied, if possible, to the *os tincæ* or to the *labiæ*, and the hæmorrhage encouraged until relief was obtained.

Returned at 1, P. M., and found that leeches had not been applied, as relief was obtained from the application ordered, soon after I left the house. Ordered them continued.

Evening, 6, P. M. Much better; abdomen soft and much less tender; no bearing down pains; can extend legs; skin warm and moist; pulse soft, rather quick, but not so frequent; less thirst; also less head-ache. Ordered same means continued, and left this prescription to be given if pains should return: ℞. Gum camph. ʒss; sulph. morph., gr. j; mucilage g. Arabic, f℥vj; syr. simp., f℥ss; M. Table spoonful, repeated every 3 or 4 hours. Enema of flaxseed tea, if required.

January 12th. Scarcely any material change since last account; pulse and skin as above mentioned; some headache to-day. Ordered same treatment.

January 13th. Still better; no pains; but some soreness of abdomen generally; no menstrual discharge. Skin and pulse good; bowels moved two or three times, with relief. Ordered medicine to be gradually reduced and light nourishment.

January 14th. Patient cured; the courses having returned.

ART. V.—*Meningeal Tumors, with Sundry Complications:* By BENNET DOWLER, M. D.

CASE I.—1833, December 29th. Called to see Aaron, aged 27, negro slave of Judge D., at Clarksburg, Virginia. Received the following history: A. was confined to his bed three months ago, with what was supposed to be fever (typhoid?); took several cathartics of calomel, rhubarb, and aloes; was afterwards treated by steam doctors (Thompsonians). He recovered in some degree; attempted to work a little; but continued to complain, and soon returned to his bed again.

Pulse slow and corded; cough; wheezing; much expectoration; tongue furred; constipated; urine scanty and loaded with epitheliaal scales; skin rough, hard, scurfy, dry; extremities cool; left leg anasarcous, and much enlarged, as far as the knee; the epidermis of which is exfoliating; has sharp intermitting pains in this leg; no other indications of dropsy excepting in the left limb aforesaid.

The scaly, thickening, dryness and insensibility of the skin of the chest appeared wholly to prevent the action of a blister which had been applied. Debility; confined to bed; his appearance either idiotic, or as if stunned by a blow; comprehends questions with great difficulty or scarcely at all, unless repeated frequently and loudly; speaks in a drawling, imperfect manner, at the same time violently contracting his eyebrows; forgets the connection of his discourse, but does not substitute incoherent words; almost deaf; sometimes delirious, particularly at night; has appetite; is thirsty.

Learn that six years ago, Aaron had a severe fall from a horse, thereby hurting his head, which confined him to bed for several days. He was considered a stupid negro by his owners.

It is not necessary to give the details of his daily symptoms and treatment for the next twenty-five days' attendance: bandages to the leg;

diuretics; cathartics; enemata; expectorants; nitro-muriatic spongings over the body, and other remedial measures were resorted to, with apparent advantage for a time. In a week or ten days the anasarca disappeared from the leg; the tongue became clean, and at a later period, the urinary discharge become more copious; the skin natural; the mucous rattles, wheezing, cough, and sputa diminished. His circulation and temperature were, however, variously affected; sometimes the skin was hot; the pulse hard, irregular, intermittent, yet slow; he was restless; complained of headache; yet the light was not painful; the pupils were contractile and responsive to light during almost the whole course of the disease. In the meantime his intelligence was slightly improving until near the close of life.

On several occasions Dover's powders were given at night, with a view of procuring rest and diaphoresis; but their effects appeared injurious by producing a comatose, unnatural sleep; the temporal, frontal and the other veins of the head became distended as if varicose.

Finally he had fever; great thirst; nausea; vomitings; increased torpor of the bowels; had a weak, small, intermittent, yet slow pulse; copious urinary discharges; coldness of the extremities; noisy respiration; mucous rattles; growing somnolency; universal prostration; prolonged and finally deep coma.

Two curious, though apparently trivial facts remain to be mentioned, namely, throughout my attendance, whenever an enema was prescribed, a formidable difficulty was always encountered from the spasmodic closure of the sphincter ani; again, as he generally past his urine and fæces in bed, he charged these nuisances most positively upon some of his fellow-servants or some of his acquaintances.

Aaron died January 23d, 1834.

Post mortem examination sixteen hours after death, assisted by one of my pupils:

Chest.—Bronchial mucous membrane engorged and loaded with muco-purulent matter; lungs free from tuberculization; portions of both were, however, very dense, heavy, and liver-like, in a word, complete specimens of red hepatization. Aörta uncommonly large, perhaps a partial dilatation.

Abdomen.—Both the small and large intestines were empty, vascular, and in many places contracted; the mucous tissues tumefied, injected, and dark in patches. The stomach contracted, thickened, blackish, and softened, all the coats tearing upon, forcibly inflating the organ. The liver, spleen, kidneys, pancreas, etc., unaltered. The gall-bladder enormously distended, with about five ounces of liquid, like dark, thin

molasses; the fat of both the greater and lesser omenta, had disappeared; arteries empty; veins engorged.

No dropsical effusions in the chest, bowels, or cellular tissue.

Head.—Ararchnoidal and ventricular serosity eight to ten ounces; pia mater highly vascular and engorged; brain firm, but in this respect scarcely morbid.

A tumor of a grayish color was found on the right side of the brain covered with the cerebral meninges, nearly opposite the upper part of the mastoid of the right temporal bone, between the auditorius internus and the great lateral sinus. The pedicle or neck of this tumor upon the brain was about two or three lines in diameter; from this stalk it enlarged abruptly into a bilobed spheroidal body, which was imbedded in a blind hole in the petrous portoin of the temporal bone, the inner plate of the latter having disappeared doubtlessly from the pressure of the intruding meningeal tumor. This tumor weighed 120 grains, one lobe-like portion of which appeared as a somewhat broken down matter, softer than brain; the other and larger portion was somewhat hard, uneven, and fibroid, the whole constituting what might be called a *cerebro-meningeal tumor of a cancerous character.* It had formed no adhesions to the osseous cavity which it filled in petrous bone.

It may be remarked that the lesions found in the stomach and bowels, though severe, were probably consecutive and late in their development; the appetite and digestion having been but little impaired until the last week of life, when nausea, vomiting, and increased febrile action took place. The lesion of the stomach and the cerebral effusion were probably the immediate causes of death. Hepatization and bronchitis were supposed to have been of several months' duration; but doubtlessly tended to complicate the case and augment its danger.

The anasarca and pain of the leg occurred on the side opposite to the one affected with the tuberiform mass. It is remarkable that the usual phenomenon of cerebral lesion, paralysis on the side opposite the lesion did not occur; but, instead of this, there was anasarca of limited extent, which, however, had disappeared nearly two weeks before death.

The intercranial serosity which was limpid, was found chiefly exterior to the brain, in the ararchnoidal sack. The cerebral substance and meninges were alike free from serous infiltration.

There was neither paralysis of motion, nor sensation, nor convulsion. Nor was there any tetanic spasm, excepting the rigidity of the anal muscles. Intelligence was not wholly abolished until near death. Delirium was infrequent, notwithstanding the hallucination in reference to the nuisance committed in bed as already stated.

CASE II.—Sept. 16th, 1853; 9, A. M.; deadhouse 88°. *Yellow Fever.*

C. W.; born in Germany, aged 25; resident three weeks; last from Memphis; a baker; admitted yesterday, sick one day. Learn that during the time he was in the hospital, thirty-six hours, he took no medicine, but arrow-root; diluent drinks; was sinapised on the abdomen; had neither vomiting nor diarrhœa; was sometimes delirious, and, finally, had to be tied in bed to prevent him from getting up and wandering about.

Died in two and a half days' illness.

Autopsy.—Neck limber, limbs rigid; skin yellow and in dependent parts nearly black with cadaveric injection; body of medium size; muscles well developed, natural in consistence and color; adipose tissues moderately developed; blood liquid and dark. A very remarkable anatomical fact was noticed in this man, namely, a supplemental bone running upward, backward, and outward from the hyoid bone and thyroid cartilage to the styloid process, being slightly cartilaginous at its upper extremity. Lymphatic glands somewhat hypertrophied in the trunk, neck, and limbs, as well as the mesenteric glands.

The papillæ of the base of the tongue enlarged, dark red; the latter color prevailed in the mucous membranes of the pharynx, larynx, trachea, and bronchi; the lungs much engorged and dark. The heart contained dark, diffluent blood on the right side; the subserous tissue of the right auricle, the tricuspid, and the chordæ tendinæ of both sides, dark red, injected and somewhat thickened or tumefied.

Omentæ emaciated, vascular, injected, red, portions black like gangrene, but without loss of cohesion. The liver, a little enlarged, natural in consistence, inclined to a straw-color. The gall-bladder contained about half an ounce of thin, darkish liquid, leaving a yellow tinge on white surfaces. The spleen hepatized and hypertrophied about six times; kidneys engorged; bladder contracted and empty; pancreas, solar plexus, and ganglia, natural.

The jejunum and ileum, each had a firm intus-susception from above downward, the invagination extending from three to four inches. The cardiac half of the stomach was internally of a deep claret color, the mucous tissue thickened; the sub-mucous had punctiform rather than arborescent injection; a considerable portion of both the large and small intestines had a similar appearance, particularly the lower portion of the ileum, the entire cæcum, and the lower portion of the rectum. The stomach and jejunum contained much blood mixed with a grayish liquid like arrow-root. The large intestine and portions of the small,

were contracted or collapsed; there was neither fæcal matter nor bile in them.

The brain somewhat vascular and injected, was of natural consistence; its pia mater vascular, with but little injection or turgidity; serosity about one ounce.

Upon the superior surface of the tentorium, and at its inner margin on the right side, adjoining the crura of the cerebellum, an atheromatous(?) tumor was found, composed of soft, granular, rounded aggregations of a pearly or spermaceti hue, easily separable from each other, many being as large as a small pea, but formed of smaller ones. These bodies, though agglomerated into a rounded mass, were not enclosed in a common cyst. This mass was less firm than scirrhous, fibroid or tuberculous tumors generally are. It was nigher the encephaloid or soft cancer in its consistence, but was non vascular. The microscope did not discover red blood-vessels in its structure. The granules appeared free from fibrous structure, their cohesion being slight or brittle, like a soft-boiled potato.

This tumor had no apparent connection with the brain. Its subordinate spheroidal granules appeared to be enveloped by indescribably thin laminations of the cerebral arachnoid, yet totally free from the latter as reflected upon the dura mater.

Capillary vessels could be seen approximating the tumor. The granules were apparently developed from the terminal branches of the subarachnoid capillaries as grapes from their stems.

The tumor weighed eighty grains. The arachnoid must be regarded as its seat.

The tumor was probably a chronic one, not having been developed during the brief illness which caused death; a conclusion strengthened by the remarkable fact that the adjacent portions of the brain and its meninges were free from injection, vascularity, redness, and all other appreciable alterations. The expectant treatment in this case cannot reasonably be supposed to have caused any of the lesions enumerated.

Judging from my own experience in pathological anatomy, which has been extensive, I regard the tumors above described as exceedingly rare, as compared to meningeal tuberculosis, cysts, etc.

As the first case copied from my second MS. volume is not very fully reported, I beg leave to supply this deficiency by adding a case from Scandinavian authorities, presenting a certain degree of parallelism as well as contrast to that of the negro Aaron. The case is taken from the July (1857) number of the *Dublin Hospital Gazette*, the reading of which recalled to mind the history which I have already given :

"*Transactions of the Swedish Society of Physicians. Session* 1854-55. *Case of Chronic affection of the Brain: By Hrr. Malmsten and Retzius.*—Lieutenant J., aged about 50 years, who had for many years suffered from obstinate constipation, in the commencement of 1854, got pain, and a sensation of weight in the head, gradually increasing until spring, when he was attacked with symptoms of violent cerebral inflammation. He was then attended by Dr. Klintberg, and got better. In the early part of summer he came to Stockholm, on account of his health, and then complained of obstinate constipation and severe headache. His articulation was slower than it had been in health, he had a staring look, and there was some weakness in the right extremities, causing the patient, in walking, to incline to the right. Attacks of severe cerebral congestion returned periodically, when there was extremely violent headache, more or less delirium, and very considerable contraction of the pupils. Such an attack usually terminated in five or six days, leaving the patient duller, and his speech more incoherent. Some organic disease of the head was suspected, but a difficulty was felt in defining its seat. The prognosis was unfavorable. The treatment consisted chiefly in the use of derivatives; iodide of potassium was not borne. The patient passed some weeks, during the latter part of the summer, at Bie, where a similar violent attack occurred; he subsequently returned to Stockholm, his disease becoming gradually more fully developed. During the last three months the torpor, incoherence of speech, and vacancy of expression of countenance increased, but no complete paralysis set in. The constipation was so obstinate, that no aperients had any effect. Spasms in the right arm and leg finally came on, and death supervened, after the patient had lain for some days in a comatose condition. On opening the cranium the convolutions of the brain were found to be flattened, and the blood-vessels highly congested. On the summit of the right hemisphere was a tumor one and a half inches long and one inch broad, elevating itself about a line and a half above the normal softer brain. The ventricles were all filled, and somewhat distended with serous fluid. Hr. Malmsten added several observations upon the seat of the disease, and the symptoms during life; after which Hr. A. Retzius, to whom the examination of the brain had been intrusted, made the following report:

"In the region over the fissure of Sylvius, on the right side, the arachnoid and pia mater were thickened; the latter presented a considerable increase of vascularity. Within this was found a hard portion which, when it was examined, was ascertained to be a mass in part reddish-grey, and in part whitish-yellow, extending to a thickness of from

three to five lines within the hemisphere, through what has been called the roof or lid of the fissure of Sylvius. From this the diseased mass extended to the remarkable cerebral ganglion, which Burdach has called the white part surrounding the lenticular nucleus (*corpora striata externa* of authors). On the surface of the ganglion a condition of softening existed, reaching, however, only a few lines inwards, with an extent of a little more than half a square inch. Hr. R. believed that the phenomena which had been most prominent during the patient's illness, proceeded from pressure and softening in this situation. On microscopic examination of the diseased mass, he had found that it consisted chiefly of fibrous elements, most abundant about the centre of the mass; and towards the surface more and more mixed with corrugated, and as it were hardened nuclei, somewhat larger than blood corpuscles, and rather yellowish in color. In many places these lay crowded in small knots, as if they had been enclosed in cells whose walls were destroyed. A smaller number of so-called corpora amylacea, likewise corrugated and yellowish, also occurred here, with remnants of cerebral tubes, and cerebral cells of various sizes. This morbid mass had no defined boundary, no investing membrane, but was formed by a local deposition of fibrinous plasma from the blood-vessels passing into a state of induration. In some of the neighboring portion of the brain a more recent acute inflammation of small extent had set in, causing softening and death.—p. 32."

ART. VI.—*Remarks on Medical and General Education:* BY BENNET DOWLER, M. D.

THE last act and the last scene of the college drama, the diploma inauguration, is an event of great import to the medical student. He is then made a doctor in pedantic Latin, and hopes like Butler's Prince of Syracuse, to

> "Find his *subjects* ne'er were so obedient
> As when he was inaugurated pedant."

Except in China, *O eruditissime Domine*, your diploma, though well merited, will not always command the respect of the public, much less that of the Government of this great Republic. In the Celestial Empire it is far different, thanks to the Manchow dynasty of Ta-tsing, as will more fully appear in the sequel.

Wood, the historian of Oxford, relates, that "two students having one day presented themselves at a baronial castle, and sought an introduction by the exhibition of their academical credentials, (diplomas) in which they were each described as gifted, among other accomplishments, with a poetical vein, were ordered by the baron to be suspended in a pair of buckets over a draw-well, and dipped alternately into the water, until each should produce a couplet on his awkward situation; it was not till after a considerable number of duckings, that the unfortunate captives finished the rhymes, while their involuntary ascents and descents, during the process of concoction, were heartily enjoyed by the baron and the company."—(Craik, *Hist. Lit.*, ii, 148.)

There is reason to fear, at the present day, that, if all who get the degrees of A.B., A.M., LL.D., D.D., M.D., were required to give proof of the ability and learning set forth in their Latin parchments, some might be in as sad a dilemma as were the Oxford students.

If the diploma crop should go on increasing, as the interest of institutions who derive a revenue from such increase requires, the supply may finally exceed the demand, and become as valueless as the title of captain, esquire, or one of the sovereign people! Hence the importance of endowing institutions, so as to make them independent of the patronage of the pupils who may be candidates for diplomas: otherwise these institutions have an interest in lowering the standard of education.

The depreciation of diplomas and other literary distinctions, scientific honors, testimonials, and encouragements is an evil, the disastrous effects of which it would be difficult to over-estimate in its effects upon the progress of useful knowledge, discovery, and æsthetics, the animadversions of the satirists and self-sufficient utilitarians to the contrary notwithstanding.

R. M. Martin, Esq., (Colonial Treasurer,) in his work on China, (2 vols., Lond., 1847,) says, that "learning is indispensable to attain an office of trust in that country. Every peasant and the poorest fisherman can read and write. The average number of students at Canton alone exceeds 8,000. Out of so many candidates only 71 can obtain the second degree, *Keu-jin;* the third degree, *Tsin-sze*, is conferred only at Pekin."

Mr. Martin, whose official duties led him to visit all the accessible districts of China, maintains, from observation, that the examinations of candidates for degrees, in that country, are far more strict and impartial than in Christendom. He says: "It is on the literary institutions of China, the government chiefly relies for stability and support. The military are not adequate to the task; and hence the great atten-

tion and uniformity of their system of education throughout the whole of the celestial dominions. Wealth and station have their influence here as well as elsewhere, but learning is indispensable to attain an office of trust, and this is the policy of the state, by opening a way to the ambitious, that they may attain to the highest office in the government, and thus prevent the overthrow of the ruling powers. The governors and all the officers under the crown have distinguished themselves by their intellectual powers."—(i. 75.)

These quotations are given, not to show that the sciences are more advanced in China than elsewhere, but to show that the Chinese principle is a good one in all governments, namely, that all the high and important offices should be intrusted to the learned and wise alone, and not to the ignorant and incompetent.

In this Republic, neither learning nor literary distinction appears to constitute any claim to popular suffrage or political preferment. From the humblest corporation to the national government, the claims to legislative, executive, and diplomatic office, founded upon scientific and literary attainments, are not simply ignored, but really seem to stand in the way of promotion, at the present day.

It may perhaps be said, that on the whole, modern education is deficient as compared to the past, in reference to the classics of antiquity. Nevertheless, the advantage is with the moderns in regard to the positive sciences, useful improvements and discovery. The men of learning of the present day, and the men of learning of the fourteenth, fifteenth and sixteenth centuries, afford, in many respects, a contrast.

Instruction, in the positive or the experimental sciences, is now essential to the prosperity, usefulness, and permanence of all educational institutions worthy of the name.

"In the reign of Edward III, (1344,)" says Hume in his History of England, "there were in the University of Oxford alone thirty thousand students. What was the occupation of all these young men? To learn very bad Latin and still worse logic."—(ii. 472.)

It is to the earlier rather than to the latter days of this Republic, that one must look for philosophers as well as patriots in the legislative and executive departments of the government. Sciolists of the modern political school, (the greatest-number-of-votes-school,) assume that men of education are not qualified to serve the people, and the same error has been sometimes advanced by physicians in relation to medical practice. The natural history of calves shows ingratitude of a similar character, since these foolish creatures butt the teats from which they get their nourishment.

Whence the decadency of this old and celebrated institution? Let one educated in it answer. Of this university, Sir C. Lyell says, that "from 1840 to 1844, chemistry and botany attracted only from three to seven students; geometry, astronomy and experimental philosophy scarcely more than chemistry and botany—mineralogy and geology ten to twelve students. The classes of some of the professors were entirely deserted. Cambridge has passed through the same phases as Oxford."—(Travels in North America. 1845. ii, 212 *et seq.*)

Sir Charles, however, accounts for the decadency of the English universities by alleging the incompetency of their teachers: "The choice of teachers is not open to free competition, a few tutors only are selected from merit." He also attributes this decline in part to the prevalent "utilitarian spirit. Even on purely utilitarian grounds, nothing can be more short-sighted than the usual policy of the herd of *cui bono* philosophers, who award higher honors and emoluments to the application than to the discovery of scientific principles."

The antithesis which sciolists pretend to discover between speculative and practical philosophy is altogether invalid and visionary.

Professor Liebig in his letter to Professor Faraday, dated a few years ago, says: "What struck me most in England was the perception that only those works that have a practical tendency awake attention, and command respect, while the purely scientific, which possess far greater merit, are almost unknown. And yet the latter are the proper and true source from which the others flow. Practice alone can never lead to the discovery of a truth or a principle. In Germany it is quite contrary. Here, in the eyes of scientific men, no value, or at least but a trifling one, is placed on the practical results. The enrichment of science is alone considered worthy of attention. I do not mean to say that this is better; for both nations the *golden medium* would certainly be a real good fortune."

The surest way to effect educational reform, to prevent decline, and eradicate sciolism in science, and to elevate the scientific character and claims of students and colleges, is to appoint none but able, learned, practical and conscientious professors, instead of acquiescing in the system of self-appointment and self-perpetuation. A manual and a methodical plan for the examination of *teachers*, are, as yet, desiderata to such as are sincere in their wishes for the real and certain progress of medical education.

In a paper relating to medical education in the *Med. Chir. Review* for October, 1848, the writer maintains that "*a superior professional education cannot be given without superior teachers*." Distrusting the

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propriety of the chemical course, he thinks that "chemical physiology ought to be taught in the physiological course, pharmacy in that of materia medica, pathology and therapeutics in that of practice, botany and chemistry being of little practical value except as branches of general education."

"A peculiar feature of the Medical School of Paris is the *Concours*. All medical appointments from the lowest to the highest are determined by this test. A series of subjects is selected by the faculty, on which the competitors are obliged to treat both in writing and orally; these are determined by lot; each lesson is delivered in public and before the faculty and it must occupy one hour. Each candidate must, moreover, write a thesis on a subject selected by the judges, and defend it publicly against his opponents. The *concours*, which is a severe trial, possesses one great advantage—it is a *test*, and if not altogether perfect, it is infinitely superior to the system pursued in England, where preferment too often goes by favor, and the ignorance of the aspirant is only discovered when it is too late to apply the remedy. By the *concours*, a man, however lowly his origin and however humble his worldly advantages are in other respects, may yet rise to the summit of his profession by industry and talent alone, a fact which is strikingly illustrated by the course of most of the leading members of the profession in this country. Medical students who propose to graduate must have studied four years, must have obtained a diploma of Bachclor of Arts, and must undergo five examinations, write a thesis, etc."—(Galignani's *Guide to Paris.*)

As late as two centuries ago, the men of letters, lawyers, doctors, divines, and others wrote books, corresponded, disputed, and lectured in Latin, but as critics admit, in Latin unworthy of Cicero or Celsus. The progress of the positive sciences and the advanced state of knowledge since that period cannot be acquired and applied according to the exacting demands of the nineteenth century, at least by a majority of students, without, in some degree, neglecting the ancient languages. What the veteran philosopher, Humboldt, says in his Cosmos concerning man in general, applies particularly to the physician, namely, "man can produce no effect upon nature, can appropriate none of her powers, if he be not conversant with her laws, with general relations according to measure and number."

But how shall the physician best acquire a knowledge of the laws of nature in special reference to the art of healing? Neither the learned languages nor the science of mathematics is sufficient for his practical purposes, and if much time be spent in these studies so as to make him

thoroughly master of them, the probability is, that "the weightier matters of the law" will have been neglected. Of mathematics, Goldsmith, himself a graduate in medicine, says: "Mathematics are perhaps too much studied at our universities. This seems a science to which the meanest intellects are equal. I forget who it is who says that all men might understand mathematics if they would." — (*Inq. into Polite Learning.*)

The late Dr. Abercrombie, in his interesting work on the *Intellectual Powers*, says that "the chief error in education is the devoting too much time and attention, in females, to superficial accomplishments, and in males, to mere acquirement in languages and mathematics. The great objects are things of real utility—habits of observation, association, and induction." In a word, the student must devote himself to the facts and principles of the experimental as well as the mathematical sciences.

Dr. Whewell very justly says that "it is a test of true theories not only to account for, but to predict phenomena. The idea and the facts must be *homogeneous;* and the rule must be *tested by the facts.* The method of natural classification consists in classing cases, not according to any assumed definition, but according to the connection of the facts themselves, so as to make them the means of asserting general truths." (*Induct. Sci.*, I, xxxix, xliii, xlvi.)

The French government has, like that of China, respected, consulted, and honored its learned men, with this difference, that the luminosity of French science is to that of China as sunshine to moonlight. It appears that in France the Academies forming the Institute chiefly, numbering more than two hundred members, compose a corps of scientific men who hold a semi-official relation to the government. The Institute of France consists of several Academies, the members of which receive about 1,500 francs each. Among these organizations are the Académie Française, 40 members (whose duties lead them to the dictionary of the language, including its purification and extension, the award of prizes, etc.); the Academy of Sciences, 65 members; the Academy of *Belles Lettres*, etc., (learned languages, antiquities, etc.) 40; the Academy of Fine Arts, (painting, sculpture, architecture, engraving, music,) 41; Academy of Moral and Political Sciences, (legislation, jurisprudence, political economy, statistics); the Academy of Medicine, 139 resident members. The Faculty of Medicine has 26 professors who receive from 2,000 to 10,000 francs; the Agrégés 2,000 to 8,000 francs.

The minister of public instruction is ex-officio president of the University of Paris, while many colleges, schools, and institutions sustain similar relations to the state.

Now whether this is a perfectly accurate enumeration in all of its details or not, is unimportant to the end for which it is given at present, namely, to suggest the fundamental principle that a good government, particularly a popular one, has constant need of such a body of independent, scientific men, for advisory purposes in numerous instances concerning the public good—instances in which neither a majority of votes, nor the qualification of most politicians can be trusted with safety. The expenditure of the public treasure in this behalf, would doubtlessly more than repay the reddest, the most ultra republicans.

Neither the houses of Congress, nor the executive departments can be too well informed in geology, mineralogy, metallurgy, meteorology, chemistry, agriculture, geography, astronomy, architecture, mechanics, political economy, jurisprudence, natural history, botany, zoölogy, hospitals, forensic medicine, hygiene, and other branches of science, art, and public economy, which exalt and adorn, while they contribute directly to the physical comforts and well-being of a nation. The kite by which Franklin discovered the identity of electricity and lightning, virtually enabled him to disarm the thunderbolts of heaven.

The army of the East, under Napoleon, in 1798, was as well supplied with philosophers, naturalists and artists, as with generals, Geoffroy, St. Hilaire, Monge, Denon, Berthollet, Fourier, (secretary to the Institute of Egypt,) and others, including learned medical men, who contributed to that great work, *Description de l'Égypte*, which formed an æra in modern research into Eastern science, art, history, arachæology, climate, diseases, etc. M. Coutelle records the meteorology of Cairo for three years, 1799—1801; M. Regnault analyzes the Nilotic alluvium; M. Andréossy examines the structure of its valley; M. Nouet, astronomer of the commission of sciences and arts, surveys the heavens while conflagration sweeps over the land of the Pharaohs lighting up the summits of the pyramids; M. Villoteau writes more than 400 folio pages on the state of music in Egypt (*De l'état actuel de l'Art Musical en Égypte*) amid the roll of fire-arms and the reverberations of artillery.

Impartial history will show that these scientific commissioners, with few exceptions, proved themselves to be among the first statesmen in Europe, as Monge, Denon, Berthollet, Fourier, etc.

The government of the country as well as of the medical and other colleges, should be confided to men of education. Should reason become popular and common sense supreme, the people will intrust the legislative, executive, and judicial departments of the government to none but men of the highest moral excellence and of the greatest knowledge, whose intellectual superiority is the surest guarantee that they

are practical men, who best know how to promote the well-being of society.

The British government rarely recognizes discoveries or eminence in the arts and sciences, and when it awards an honorary distinction, the latter is the lowest kind of knighthood. "Knighthood in England is now conferred by the crown by simple verbal declaration, attended with a slight form, without any patent or other written instrument. 'Sir' is prefixed to the baptismal name." The third and lowest class of knights, styled companions of the order, take precedence over esquires. It is believed that this latter distinction, small as it is, is the highest which has been conferred by the British government as a reward for scientific attainments and discoveries, and even this honor is very rare except in the army or navy. This is thought honor enough for the Isaac Newtons, the Humphry Davys, the Herschels, and too good for the Shakespeares, the Miltons, the Johnsons, etc., names more illustrious than any crowned head or peer of the realm.

The British and Foreign Med. Chir. Rev. for July, 1857, in its review of the reports on the Crimean army and its medical staff, holds the following language: "The honorary distinctions and rewards: the non-participation by the medical officers in the distribution of honors for service in the field, has long been a source of just complaint in the department. It is only within a few years that they were conferred on them with a very sparing hand, compared with their more fortunate brother officers. Nor has this been compensated for by the grant of the civil Order of the Bath, which for many of their services would be an appropriate reward, and though not conferred, has been often merited."

The American Medical Association has been, from year to year, exerting its influence with the Navy Department of the United States, in order to obtain for the medical officers in the naval service, the assimilated military rank or grade which is unjustly held from them, because they have not an actual command! The action of the government of late, had been directed to the positive degradation of these medical officers from their former rank!

The July (1857) number of the above named Journal concludes with an article on education, from which the following condensed extracts are taken :

"Fact is indeed stranger than fiction. What many of us have yearned for, but what none could have expected to see realized, is come to pass: Oxford and Cambridge have spontaneously offered to become the patrons and promoters of education of the middle classes, undertaking the task of guiding and testing the instruction given in the schools, by appoint-

ing and sending examiners to any place required, etc., etc., to grant certificates as to the qualification of teachers, to examine and certify concerning the elementary education of students, to confer upon the latter distinctions, honors, and the degree of Associate in Arts, etc.

"That the country will be glad to avail itself of a test such as the one proposed, can scarcely be doubted. There may be sluggards and dullards who would rather lag behind, or avoid entering into a new and an unknown course; but the *vis à tergo* will be too powerful for them, and the current once having set in, will sweep along with it all recusants. The desire of the public for an independent standard has been manifested on various occasions. One of the best known schemes of examination of an analogous character is that commenced already by the Society of Arts; and the best evidence of the value in which it is held, is afforded by the number of persons who subject themselves to the ordeal, and the interest taken by their friends in the success or failure of the denizens of distant towns and counties, as recorded in the daily papers. But important and demonstrative as these individual instances of spontaneous action may be, they will fail of the universal influence that must be acquired, unless a general organization is secured. The importance of the certificate to be obtained will be a sufficient security that the examinees will not be wanting. The security that the examiners will do their duty, will lie in their independent position—independent as far as petty and local or nepotic influences are concerned, dependent only upon the controlling influence of enlightened public opinion. The medical profession cannot, we are assured, but hail the prospects of a high standard of testing preliminary education—the education that must precede professional studies, if those studies are to bring fruit commensurate with their importance. Our medical corporations have striven nobly to secure this preliminary education in all their candidates, but it is manifestly not the proper sphere of a licensing body to do more than to ascertain the fact that the candidates have gone through a suitable curriculum. It will therefore necessarily be their interest to promote such a scheme as the one proposed, by requiring all their candidates not possessed of a University degree, to pass the examination before the Oxford or Cambridge Board. We would suggest that they at once put themselves in communication with the board, as soon as constituted, so as to arrange about the character of the examination which they would wish to regard as a minimum qualification."

Although the United States has, perhaps, more Universities (taking the legislative acts and charters for a guide) than insular and continental Europe, yet, probably, there is no one of them in the Republic, from

which a Board of Examiners could now emanate, clothed with authority or sufficient influence throughout the different States, to accomplish the ends contemplated above, without the aid of the general and State governments, including existing institutions, the American Medical Association, the American Association for the advancement of science, and other similar organizations. In this way the so-called "self-made men," the artists, scholars, medical and other students, whose restricted pecuniary means never permitted them to enter colleges or universities, may have their competency tested, and be graduated without serious expense. Some of this class possess superior, yet unrecognized attainments in the arts and sciences. It is of no importance to the public requiring their services, whether their knowledge was acquired in a log-cabin or in a chartered college.

PROGRESS OF MEDICINE.

ART. I.—*Epidemic of Variola arrested in its progress by general Vaccinations and Re-vaccinations.* Translated from the *Journal de Médecine* de Bordeaux, of May, 1857, for the New Orleans Medical and Surgical Journal: By J. P. BARBOT, Apothecary, New Orleans.

[Extract from a memoir to which the Imperial Academy of Medicine of Paris awarded a gold medal at its public sitting of December 16, 1856]: By M. HENRY GINTRAC, Adjunct Professor of *Clinique Interne*, Physician for Epidemics (*Médecin des Épidémies*).

EPIDEMICS should occupy an important place in medical literature. They embrace the most important questions of social hygiene; they furnish to the physician great instruction, and are to him a source of investigation from which he draws materials calculated to elucidate certain pathogenetic and prophylactic problems.

Among epidemics, some are essentially aggressive and irresistible in their course; they strike cruelly and sometimes cause death, regardless of the most ingenious theories and the most rational systems of treatment, while others, less violent and more limited in their course, yield to a well regulated hygiene; the latter accord to medication a more evident salutary and preservative influence. To the latter category belongs the epidemic of which I will now treat.

For some years past, variola has been raging with some persistence in the department of Gironde; it seemed to have a predilection for this department, and on several occasions it assumed in some parts of it a truly epidemic form.

In 1854, the *commune* of Gujan, Canton de la Testo, was the seat of a serious epidemic of variola. I was sent by the prefect of la Gironde to that locality to study the nature of the disease, seek out the treatment best adapted to combat it, or at any rate, to point out the most proper method to check its progress. This epidemic having been made by me the subject of a particular study, I purpose to relate its principal manifestations, its various phases, its mode of propagation; and particularly to show by what means I was enabled to arrest its progress at once.

On the south bank of the basin of Arcachon, is situated Gujan, which contains within its jurisdiction three other hamlets, Mestres,

Laruade and Meyran. These different sections are pretty close together, and properly speaking, form one *commune* only. Their total population is about 2,600 inhabitants. These are either farmers, shepherds or seamen, and live in comparative comfort on the product of their labor; they are generally speaking robust; although, in the last few years their constitution has been somewhat impaired by attacks of intermittent fever, which has become endemic in all that section of the country.

Towards the close of October 1853, Margaret D., 26 years old, residing in Gujan, went to Langon, (arrondissement de Bazas,) to see one of her female relations who was attacked by variola. She stayed there 15 days. Though Margaret had been vaccinated in her infancy, as was shown by vaccine cicatrices on both arms, she feared contagion. Consequently she remained as little as possible in the room where the patient was, and took frequent walks in the open fields. She had scarcely got back at home when she was attacked with general uneasiness, pains in the head and back, fever and vomiting. After five days of continued fever, an eruption appeared on the face, the body, and then on the upper and lower limbs. This eruption was clearly defined and offered all the characteristics of variola. After having been simply papular at the outset, it became vesicular, and lastly pustular. The pustules were very close together on the face; they almost run into one another at their circumference, became rounded and exhibited in their centre an umbilicated depression. The period of suppuration came on, and with it secondary fever, swelling of the face and hands, severe pain in the throat, difficulty of swallowing, a partial extinction of the voice, etc., etc. There could consequently be no doubt as to the nature of this eruption. Although very confluent, its course was not impeded by any serious complication, and the pustules dried up on the twenty-fifth day.

During the whole course of her illness, Margaret was nursed by her mother. The latter, 57 years old, who had been vaccinated also, was taken with variola shortly after her daughter's convalescence. In her case, the period of invasion exhibited, amongst other symptoms, very high fever, frequent vomitings and violent delirium. The eruption was very abundant; every part of the body, and particularly the face, was covered with extremely thick and fœtid scabs. Her sight even, was endangered for a time by an inflammation of the corneæ. The fever, very severe from the first, continued without scarcely any alteration during the period of eruption, and assumed renewed intensity at the period of suppuration. Nevertheless, she was cured on the twenty-ninth day.

At this time, that is about the beginning of January, the disease has

a tendency to be propagated in an epidemic form. Invading families, it attacked either successively or simultaneously each one of their members. In the month of January the number of individuals attacked by variola exceeded 180; on the 10th February following, it had reached to about 260. The number increased rapidly every day; the epidemic assumed a truly serious form; men and women, whether vaccinated or not, nay, even those who had had variola already, paid an almost equal tribute to the epidemic influence.

I will not cite a long series of individual cases; it would be running the risk of losing myself in details as useless as they would be fastidious, without any benefit to my readers. Besides, the course of the disease was uniform in all the cases. I therefore think it preferable to give a summary of all the characteristics of the epidemic, pointing out particularly any exceptional facts.

Variola was generally propagated by contagion, particularly miasmatic contagion, that is by the breath of the patients and the emanations from their bodies to the surrounding atmosphere. This transmission of the disease occurred principally during convalescence. In exceptional cases it occurred at the suppurating period. Frequently those that were attacked lived at a distance from the seat of infection; they had had no direct communication with infected persons, and were scattered at a distance from one another. In such cases, it was impossible to ascertain the origin of the disease and its mode of propagation; doubtless, these were due to the extreme diffusion of the miasma, or perhaps to that general cause, of which still less is known, designated under the name of epidemic virus, (*génie épidémique*) which produced and developed variola. Lastly, if we may consider the diseases of man as due to external causes; if we may seek for an explanation of their causes, their effects, their nature, and the influence upon them of the agents surrounding man, we must at the same time pay particular attention to special aptitude, and peculiar predispositions in some subjects. Thus, the specific cause, the medical constitution, and the individual aptitude were the three agents which together concurred to generalize the epidemic.

It is difficult to fix the duration of the period of incubation, because, in most cases we cannot ascertain the time at which the system was first influenced by the virus. However, certain facts justify me in believing that it was prolonged from eight to fifteen days. During that period, the patient had vague symptoms, such as headache, uneasiness, a severe kind of tightness in the epigastric region, etc.

In every case the disease was announced by prodroma, which lasted

from two to six days. These generally consisted in fever and derangement of the digestive function. I have seen several times, either symptoms of violent cerebral congestion, or free copious hæmorrhages from the nose, or else vomiting which I could scarcely check. Pains in the lumbar region were seldom absent. The fever was generally very high, with exacerbations in the evening; it has often continued even after the eruption had appeared. In the latter cases, the disease assumed a certain degree of gravity. The intensity and duration of the precursory symptoms have not always been in proportion to the nature and confluence of the eruption. Some cases of varioloid were ushered in by symptoms as severe as those of variola. The period of invasion lasted from two to six days. In the case of one patient, whose variola was very severe, this period was almost null; or at least very difficult to make out; the eruption came out without any initial fever.

The course of the eruption was regular. Most generally, the pustules small, flat and confluent, filled slowly, and afterwards became umbilicated; (*s'ombiliquaient*); they rested on a red, tumefied and erysipelatous surface. At other times, they were discreet, developed themselves rapidly, were surrounded by a reddish areöla, became globular, and although without any central depression, they contained true pus. Their form and their development approximated them to varioloid or even to pustular varicella. But their period of suppuration came on with the most clearly defined symptoms, and cleared up all doubts.

The period of suppuration was always accompanied by pretty strong reäction; there were more or less serious derangements of the cerebral or digestive functions, intense fever; burning heat of skin; thirst; sometimes no organ seemed to suffer seriously, but there was excessive debility, a certain degree of stupor—in a word, an aggregation of symptoms calculated to lead us to fear ataxo-adynamia. I have often noticed swelling of the face and hands, and ptyalism. It was also at this period, as well as at that of the drying up of the pustules, that certain affections of the larynx and lungs became evident. The patients complained of difficulty in swallowing, and heat in the throat; there was almost complete aphony; little or no oppression; some cough; percussion and auscultation alone enabled us to discover the existence of an hypostatic pneumonia; the other constituent symptoms of this disease were entirely wanting. Lastly, and particularly in certain patients who had had confluent variola, numerous abscesses were formed during the period of desiccation. These abscesses had not been preceded by fever or disturbance of the system; they were a purely local affection; the skin was tense, red, painful; a small tumor was formed which became fluctu-

ating, burst, and discharging small quantities of purulent matter. The healing of these abscesses, which were always confined to the skin and sub-cutaneous cellular tissue, generally took place rapidly.

Hitherto I have only spoken of cases of complete variola, that is, of cases showing all the strength of the epidemic principle. Some cases have exhibited a modified eruption, a varioloid, that is to say, the variola which assails a person when he has lost in a greater or lesser degree, the immunity which vaccination or a prior attack of variola had procured him. The prodroma of varioloid were identical with those of variola. The eruption also offered the greatest analogy; but at a given time, *i. e.*, on the tenth day from the first start, or the fifth after the eruption, the aspect of affairs changed; instead of witnessing fever, swelling of certain parts, and the inflammatory areöla around the pustules come on, we would find the integuments to become pale and sunken; that the pustules cease to increase in size; that they remain acuminated and assume little or none of the navel-like form; that they dry up without breaking, everything terminating on the twelfth day. This mild form was met with only among those who had been vaccinated; it was evidently a varioloid or modified variola, mitigated by vaccination. These two forms of disease, variola and varioloid, are certainly identical; I have seen them arise from the same germ and beget each other; in fact, I could cite instances of patients suffering from variola communicating varioloid, and *vice versa*.

A woman, aged twenty, vaccinated, and having varioloid transmitted to her husband, aged thirty-five, not vaccinated, an eruption which afterwards became confluent variola. How many times in the course of this epidemic, have we not seen variola bring on in another a varioloid!

In some cases, rare it is true, the pustules were wart-like, resistant to the touch, and did not seem to contain any fluid. The lesion of the cuticle, the anatomical sign of this affection sometimes remained in the condition of papulæ, vesicular at their summit, and the vesicles after remaining three days disappeared without conflicting their evolution. A young man, aged twenty-two, vaccinated, had all the prodroma of variola: general uneasiness; great lassitude; pains in the loins; fever; nausea, and vomiting; on the fourth day, there appeared on the face and body an eruption of papular, conical and salient points, the summit of which afterwards became diaphanous and vesicular. Immediately afterwards, his fever went down; the functional derangements ceased; and the eruption, instead of going on to suppuration, disappeared towards the eighth day without leaving any traces.

When variola has gone through all its phases, it has destroyed in the

system the predisposition to a new infection. Such is the general rule, and Sydenham has been able to say, with some show of reason: *Nemini parcunt cujuscumque demum ætatis is fuerit, nisi prius hoc morbo laboraverit.* Mead also expresses himself thus: *Experientiâ compertum esse numquam iterum reverti posse variolas.* Notwithstanding, Jenner has expressed doubt on this subject, for he states in very precise terms, that the system cannot be entirely protected from future attacks of variola by one previous attack of the same. For my part, I have been enabled to witness two clear second attacks of variola in two men, one seventy-two and the other sixty-seven years old. The latter, whom I very carefully examined, had had when twelve years old, an attack of variola, which had left on his face indelible scars, and had even caused him to lose his right eye. At the time of my first visit, the poor fellow had a second confluent variola and pustules which had appeared on the left cornea, were seriously endangering its functions.

Lastly, during the course of this epidemic, the eruptive fever of variola, or rather the non-exanthematous variolic fever, (*fièvre variolique*) exhibited its most characteristic features. This fever was not solely due to the modified constitution (*constitution médicale*) of the patient; it was sometimes produced by a true contagion or infection. Amongst others, I will instance the following case: M., aged 59, was seized with confluent variola. At the time of his convalescence, his son, aged 22, who had not left him during his illness, was seized with general uneasiness, headache, fever and pains in the lumbar region; then, there supervened anorexia, nausea, vomiting of bilious matter and want of sleep. This condition lasted six days, that is, the period of the eruptive fever of variola. We expected to see the eruption come out, but it did not, and the patient recovered. This non-eruptive variolic fever was observed especially among vaccinated adults, whose parents had had variola.

What had been the influence of vaccine on the course and severity of this variola? Summing up the facts which came under my observation, I think I may draw therefrom the following conclusions: Among vaccinated subjects, variola never appeared below twelve years of age. The more advanced in life, that is, the further removed from the influence of the vaccine, was the patient, the more severe was the disease. Several families have exhibited striking examples of this extremely remarkable connection between the more or less advanced ages of the patients and the greater or lesser severity of the symptoms. The D. family consists of eight persons, the father, mother and six children; the father and mother had confluent variola; three sons, aged 26, 23 and 22, had it

of a less intense character; two sons, aged 18 and 15, had varioloid; the last, aged 12, was the only one exempt, and yet he remained continually in the same room with the patients, and was consequently exposed to the miasmatic influence. In the R. family, seven persons lived in the same house; five of these were seized by the prevailing epidemic; three of the latter had been vaccinated from 20 to 35 years before, and two for 14 and 15 years before. The prodroma and the eruption had the greatest analogy in all these cases; but when the suppurative period came on, those last vaccinated recovered in a few days, whilst those first vaccinated offered serious symptoms and a tedious suppuration.

In general, it was shown that variola was sensibly modified, and essentially less severe in those persons who had been vaccinated. Its duration was half that of an ordinary variola, and resembled this only in its prodroma and first symptoms up to the suppuration period. When it reached that point, it would be checked, and desiccation would supervene immediately; it seemed to have lost all strength to go further. I have never seen it end in death. If, out of the number of cases, some persons who had been vaccinated have been attacked by variola with all its primitive violence, such cases have been very rare.

We must then concede to vaccination the credit which is due to it: its prophylactic action, if it has not been complete, has been none the less incontrovertible, in conferring upon the disease, in a majority of cases, a marked character of mildness.

In reviewing the course of this epidemic, I find that the first case of variola occurred in November, the second in December, with serious symptoms; and that in January, the disease had become general and had acquired its greatest degree of intensity. In that period of time the number attacked was 260. As to the nature of the eruption, statistics, made with as much precision as was possible, have shown that in these 260 cases, there were 190 cases of variola and 70 of varioloid.

Ten patients have died; their ages were: 1, 2, 21, 23, 27, 29, 31, 52, 55 and 57. Not one of these had been vaccinated. Death always occurred at the period of suppuration. In the two infants above and four adults, it was produced by the considerable quantity of pustules with which the skin was covered. These produced a profound adynamic condition, and death came on without any serious lesion to any of the internal organs. In two cases, pneumonia was the cause of the fatal termination of the disease. Lastly, in two other fatal cases, variola was complicated by purpura hæmorrhagica; the skin was mottled by numerous spots of ecchymoses; there had been hæmorrhage from the mouth and rectum.

I have shown the progress of this epidemic of variola up to the 10th February, 1854. It raged freely, and a large number of persons were attacked daily. At this time, on the spot where it reigned, the question of vaccination and re-vaccination had been agitated, and the decision had been against it. It was feared that persons who had submitted to the operation would be more liable to be attacked; that vaccination, instead of being a protection, would only be a complication in this epidemic. I opposed this doctrine as much as I could; and urged the usefulness, the necessity of re-vaccinations. I was ably seconded by M. Bezian, a physician of Gujan, and by the curate and mayor of the *commune*. The people eagerly accepted this prophylactic method, and vaccinations and re-vaccinations were immediately tried on a general scale. In less than ten days we had vaccinated 180, and re-vaccinated 71 persons. The result surpassed our expectations; the disease was immediately arrested.

I deem it important to show the result of these vaccinations. Out of 180 persons vaccinated for the first time, 171 exhibited the true preservative pustules, fit to be used for vaccinating others. On the other 8, no effect was produced.

That vaccine may take twice on the same person, is no more called in question. I thought it proper, however, to endeavor to ascertain how previous vaccination would modify its effect, and what would be the course of the pustules of re-vaccination. Is there a vaccinoid as there is a varioloid? Does the vaccine principle resemble those seeds which perish if planted several times on the same soil?

I append the result of 712 re-vaccinations: on 302 persons it succeeded completely; the pustules were developed on the fourth day, filled from the seventh to the eight, then were surrounded by an erysipelatous areöla, dried up and formed scabs which dropped off on the twentieth day. The pustules had had the navel-like depression in the centre umbilicated; they had incontestably shown all the characteristics of the true vaccine pustules.

In 85 other cases, the pustules were modified; they came on as early as the third day; filled from the fifth to the seventh day with plastic lymph; were surrounded by a reddish circle; and in some cases, even caused swelling of the lymphatic glands of the axilla. These non-umbilicated pustules did not present either tumefaction or induration as true vaccine does; they did not leave, after the scabs had dropped off, any apparent scar. May we not consider this form of eruption as a species of vaccinella, which would be to vaccine what varicella is to variola?

In 119 cases, vaccination produced in the course of twenty-four hours, a pointed red pimple, which disappeared rapidly.

In 206 cases, it produced no apparent effect on the skin.

Almost all those who had been either vaccinated or re-vaccinated, whether successfully or not, were exempted from this variola. There were only five exceptions to this rule. I must say, however, that these had been vaccinated but a few days before the variola appeared. Generally, in epidemics, individuals are subject to the epidemic influence for five days after vaccination. A lad, 12 years of age, who had never been vaccinated, was vaccinated in two places on each arm. Three days afterwards, he had symptoms of variola; the eruption came out rapidly; was confluent and complicated by cerebral symptoms. Just as the pustules were about to suppurate, a sudden change came on; the delirium left him; the pustules began to dry up, and no suppuration took place. At the same time, the vaccinal pustules were developed on the arms with great regularity. At the time this lad was vaccinated, his variola was at its period of incubation, and followed its regular course afterwards; his vaccination was too recent to prevent this. At a later period, the vaccine virus was absorbed; it then acted as a preservative; and would it not seem as if it had neutralized the remaining portion of the variolic ferment and checked this disease in its progress?

I could easily have cited in support of the efficacy of vaccinations and re-vaccinations during an epidemic of variola, many similar cases from the works of the many who have written on the subject; but I preferred giving a plain statement of what I saw during the course of this epidemic, and the conclusions which I drew therefrom after mature consideration.

I close with a summary of my conclusions: 1st. The protective influence of variola is often absolute, but sometimes it is only temporary.

2d. It is difficult to determine the duration of this protective influence; but I think it may be put down at about ten years.

3d. Variola does not seem to to attack individuals at random and without any distinction; it seems to exhibit a kind of partiality, attacking those who have been vaccinated a long time previously, and sparing the newly vaccinated, even during the severest epidemics.

4th. Variola, though not absolutely preservative, exerts a salutary influence on the termination of an attack of variola. It shortens its duration, diminishes its danger.

5th. Since vaccination often protects from variola or modifies it, it is useful; but since its efficacy does not last a lifetime, but ceases at a

given time, it is necessary by re-vaccination to renew it, and continue its efficacy.

6th. Re-vaccination ought not in any way to shake our confidence in vaccination; it is calculated on the contrary, to aid it, and supplies that which is imperfect in vaccination.

7th. Re-vaccination, performed at determinate periods, places the individual in the same condition of immunity in which he was after his first vaccination; it is, consequently, a true blessing.

8th. If performed during an epidemic of variola, and in a general manner, re-vaccination checks the progress of the disease; nips the epidemic in the bud; it is undoubtedly preservative; it will modify the disease even in those who, at the time of their re-vaccination, were laboring under the period of incubation of an attack of variola.

9th. Re-vaccination, even during an epidemic of variola, is perfectly innocuous.

10th. It would consequently be desirable that the same zeal which reigned over all Europe in favor of vaccination at its inauguration, should be renewed in favor of re-vaccination as the only means proper to secure complete extinction of variola.

Art. II.—*On the Spots observed in the Progress of Fever, especially considered as a means of Diagnosis:* By Henry Kennedy, A. B., M. B., Censor of the Royal and Queen's College of Physicians; Physician Extra to Sir P. Dun's Hospital. (Read before the Medical Association of the College of Physicians of Dublin.)

Of the several symptoms of fever which have attracted a special notice, the spots which appear in its progress have not received the least. In fact, more attention has been given to them than probably to any other single symptom. Their presence, numbers, and characters, have each in turn given names to particular forms of fever. Many questions connected with these spots are really of much moment; and it has often appeared to me that views prevail with regard to them which facts do not warrant. As an example of what I mean, I would mention the very prevalent idea that the presence or absence of spots at once marks the kind of fever present. Now, this I consider quite incorreet; I have often observed cases of fever to come from the same room—often from the same bed—and yet some of them only to present spots. Or a husband and wife are attacked with fever, and the one is spotted, the

other not. Some time since, three brothers, adults, were admitted into Cork street Hospital, under the care of Dr. George Kennedy. They lived together, and were admitted within two days of each other; they had all heavy fever, but one only was spotted. Will it be maintained that those men suffered from different kinds of fever, merely because one was spotted and the others not? When we see a measly eruption on one member of a family, and a petechial rash on another, and these two come from the same room, are we justified in considering their fevers as different? Will any analogy bear out this view? Some time back, I saw, with my friend Dr. Denham, five members of the same family laboring under scarlatina; not one of these had the same form of disease. I presume few would maintain that the disease was due to a different poison in each instance. Yet when precisely a similar occurrence takes place in our ordinary fevers, it is considered by many to be caused by a variety in the poison; and the presence of spots, above all, makes many look on the disease as something very specific. My own strong conviction is, that all such differences as those alluded to are due, either to the intensity of the poison, or the state of the constitution at the time being; or any cause rather than a difference of the poison. No other explanation, as it appears to me, will account for all the facts of the case; and I think it is time that the opinions spoken of should be abandoned: as, in the first instance, not being supported by facts; and, secondly, as being quite capable of leading to erroneous views of treatment. The varied types of fever are, I believe, due to entirely different causes than specific poisons for each; but a consideration of these points does not come within the scope of the present remarks.

A second point which I would notice before entering on the more immediate subject of this paper is, as to whether there is anything of a specific character in the fever of this country. In 1847-48 the expression "Irish fever," was to be found through all the public papers of our neighbours on the other side of the channel. It became almost a fashionable expression; and the words themselves were the means of conveying more than an insinuation that the epidemic fever which then prevailed began in Ireland, and was carried by our people in every direction. Some even of our professional brethren, especially in Scotland, took up this view of the matter. Now I freely admit that sickness may be carried from this side of the channel to the other, and *vice versa;* but whilst admitting this, there are two points which are not to be lost sight of. First, there is no fever peculiar to this country, as distinguished from what is seen in England and Scotland. There is no "Irish fever," properly so called; and on this point I appeal to the descriptions of the disease published by English physicians themselves.* But secondly, and this is the important point to notice—there exists the clearest evidence to show, that before we had epidemic fever here in 1847–48, the disease had increased much in England. Nor is this a solitary instance in point. There is a great law affecting all the more

* Petechial fever is certainly not the peculiar disease of this country. I have never seen the majority of cases, at any one period, present spots of any kind; nor indeed has there been any approach to this. One spotted case in every five, I have seen; but even this is rare. In 1847-48, cases attended by spots were very exceptional.

wide-spread epidemics, and showing that their course across the globe is from east to west, or from south-east to north-west.

At a certain period of some cases of fever, it is well known that spots make their appearance. This is usually from the sixth to the ninth day of the disease; but on this point there are great differences. I think it may be stated that they will be occasionally seen as early as the third day, reckoning from the period of the rigor. There are difficulties, however, in determining this; for it by no means follows that the patient is not ill before the rigor. Still, some of the cases I have seen were inquired into as minutely as was possible, and the spots did appear then on the third day. On the other hand they are often much later than what is usual in making their appearance. Thus I have seen them as late as the twentieth day; and very critical cases all such in general were. But there is another and more important point still to be noticed as to the time of their appearance. I allude to those cases where the fever is made up of two parts, with an interval between. Here they may be absent in the first and present in the second, and *vice versa;* though the last is not as common as the first. I have notes of more than one case where the individual passed through three distinct fevers before leaving the hospital; yet it was only in one of the series that spots appeared.* And alluding to the question of any individual ever having spotted fever a second time, I may state that it has not come under my notice; though my friend Dr. George Kennedy has seen it, but very rarely.

There is still one other point worthy of notice in connection with the period when spots appear; I mean cases where we would have every reason to suppose that they would appear at the same time. As an example I may mention that not long since two sisters, both grown women, and remarkable for their great stature, were admitted into Cork street Hospital, laboring under heavy fever. They each exhibited spots; yet one of them was spotted four clear days before the other. The fact is of interest, as showing how the constitution will modify the eruption; for there was no other explanation, which in this particular instance, would account for it. These two sisters had sickened at the same time. Precisely an analogous circumstance has come under my notice in scarlatina; that is, the period at which the rash appears will vary by three or four days, though children of the same family have sickened together.

The spots of fever may exhibit themselves, as is well known, over the whole body. But in general they are more limited than this. Where they first appear I will not take on myself to determine; though I believe they will be as early seen about the pectoral muscles as anywhere else. There are some modifications of them, however, having relation to their site, which appear to me worthy of notice. Thus it is by no means uncommon to see them exclusively confined to the upper part of the body. Not one will be seen on the lower limbs.† Again, I have seen them confined, and in the most marked manner, to the

* It is the last of the series which exhibits the spots in these instances. In one case of this kind I find it was the fourth attack, and the spots then were of the character of measly eruption.

† I have seen them, too, nearly exclusively confined to the abdomen; but not absolutely.

joints. Not long since, a young man of 18 was admitted into Cork street Hospital, under Dr. George Kennedy. He was very seriously ill, his fever being marked by prolonged vomiting, of a character such as my friend, Dr. Fraser, has drawn attention to. His pulse rapid and very weak. Great distress. In the course of his illness, his elbows and knees exhibited spots, each in number probably of from forty to fifty. I could not detect a single spot anywhere else. Their character partook of a mixture of purpura and petechiæ, and they appeared to me to be slightly raised. The case recovered. Dr. Kennedy informs me he has seen several similar instances. I have now seen many cases where the spots were first visible on the backs of the wrists; and usually they have here been of a bright-red color. I have seen also instances where they were located in patches, as it were, and these symmetrical, on either pectoral muscle. In one instance well marked spots, of a bright hue, came out over the whole front of the throat and neck, and the inside of either elbow, nor could I detect any elsewhere.

Lastly, I have seen spots on the face and forehead; and I mention this particularly, because some observers have asserted that they are never seen here. This is certainly incorrect. I have notes of some eight cases, which may now be increased to eleven, where there could be no question of the fact. Last autumn, a man named Speight passed through a severe attack of acute rheumatism. He had recovered so far as to have left hospital a fortnight, when he was re-admitted laboring under one of the worst forms of fever. He was very generally and densely spotted; and on the thirteenth day of the attack, a crop of petechiæ was as distinct on the face and forehead, as on any other part of the body. This case recovered.* The way then to speak of the fact is, as being very rare, in comparison with the number of cases which exhibit spots elsewhere; but to say it does not occur at all is going farther than facts will justify. I think I have seen spots on the conjunctivæ, or at least what might be described as a mottled state of this membrane; and instances are not uncommon where a rupture of a blood-vessel, or an exudation of blood, has caused a distinct ecchymosis—I mean of course in fever. Is it straining the fact too far to suppose that such a spot is but an ordinary petechia in an unusual place? I have never seen the occurrence in fever except in conjunction with spots elsewhere.

The character of the spots of fever has long attracted notice, and some of them unquestionably deserve a special attention; but for reasons, some of which have been already given, while commencing these remarks, it appears to me too much stress has been laid on this point. Thus the bright, well-defined, lenticular spots are, I believe, constantly spoken of as being different from what are called genuine petechiæ. Now I cannot but think this is an erroneous way of considering the matter; and for the simple reason that they may be very often seen existing together, at the same time, and on the one patient. In this way we may find the bright, well-defined spots on the arms, and

* Louis, I find, gives one instance where spots were visible on the face.

the petechiæ on the body.* Of such I have seen several cases. Or again, we may see one member of a family presenting the bright spots and another the petechiæ; yet both have come from the same room. Speaking of the two kinds of eruption reminds me that some of the older authors on fever have described two crops as occurring in the one patient. This I have seen in the most marked form, not only in fever, but also in scarlatina. And in truth the analogies which the exanthemata hold, one with the other, does not appear to me to have received that consideration which they deserve. Who has not seen cases of scarlatina presenting on the surface different hues of eruption, I mean at the same time? Purpuric spots, great patches of redness of different hues, universal redness of the entire surface, and above all, spots, not possible to distinguish from what are called genuine petechiæ, may be mixed up together in the one patient; to say nothing of the varieties which the disease so often presents when going through an entire family. Now under such circumstances no one ever dreams of saying there are different poisons, according to the varied hues of the rash; yet when exactly analogous facts occur in common fever, some inexplicable necessity seems to arise for drawing distinctions where there are in reality none, and refining to a degree which, it appears to me, facts do not justify. That much valuable information—more especially as regards prognosis—may be derived from close observation of the eruption which common fever exhibits, is readily admitted; such as the brighter or darker hue which it presents; the greater or lesser size of the spots; their early or their late appearance, etc. But these points, let it be observed, are quite beside the question of whether the varieties which we see in the rash of common fever be due to separate and specific poisons, or only to one; and whether it be not more consistent with facts to attribute them rather to the temperament of the patient, the state of his general health at the time being, his age, etc., rather than to this or that poison. And this leads on to a question in direct connection with this part of the subject, about which more has been written than on any other; that is, the distinction which exists, or is said to exist, in the rash of typhus, as distinguished from the fever attended by local lesion in the small intestine, and known as typhoid fever.† On this point, I belive, authors have been too precise, and have not made allowance for the possibility of deviations, which here, as indeed in every other point connected with fever, are liable to arise. Thus, from the perusal of the most recent works on the subject, one would suppose that typhoid fever could not exist without the presence of bright lenticular spots, few in number, and disappearing long before the fever ends. Now I do not deny that this state generally obtains; but I do say that it is by no means constant. I have observed cases from the very beginning to the death of the patient, and to a *post mortem* examination,

* At this very time (January, 1857) I have a patient in fever in Dun's Hospital, who exhibits bright spots on the wrists and arms, and well-marked and dark petechiæ on the chest. She is a girl of 19.

† So far back as 1837, I published, in the *Dublin Medical Journal*, a paper on this very subject. It contained, I believe, every point which has since been advanced as a means of diagnosis between typhus and typhoid fever. The paper has been acknowledged in America, but ignored in London, where much labor has been spent by Dr. Jenner in determining what was known twenty years previously.

disclosing ulcerations of the small intestine; and yet from first to last no spots whatever were visible. And the opposite of this, again, is still more common. I have notes of a number of cases where the spots had all the characteristics, as to time, number, size, and disappearance, and yet the cases had no other symptom whatever of enteric fever, and in reality were not the disease at all.* With such facts in view, it appears to me great caution should be used in pronouncing any spots as diagnostic of this or that kind of fever; or at least of giving them more weight than any other single symptom of the disease is entitled to. It may be observed in passing, that the number of cases in which bright, well-defined spots, and few in number, have come under my notice, within the last three months, has been truly remarkable. I recollect nothing like it in previous years. Is it necessary to add that these spots were not diagnostic of enteric fever at all.

It has been already stated that much valuable aid, in a prognostic point of view, may be derived from the spots which appear in fever; and I believe it is generally admitted that the darker and larger they are the more serious is the case. In my own experience this has been so; and the worst cases I have ever seen have been attended with few spots of a large size, and confined very generally to the region of the clavicles and groins, sometimes running down the inner side of the thighs.† A much rarer appearance than this I have also observed, and if it be possible showing a more malignant form of disease; I mean where the subcutaneous veins of both the upper and lower extremities have allowed a bloody serum to exude, which is quite visible through the skin. With this state I have found in the pleura, and also the pericardium, and on the surface of the brain, serum poured out which was likewise tinged deeply with blood. In one instance I found a large effusion of blood under the pleura covering the left lung.

Of the supervention of fever in persons afflicted at the time with chronic diseases, I presume all who hear me have seen examples. I mean fever attended with spots. Thus I have met several examples of persons who were hemiplegic, and in this state were attacked with petechial fever; and again, others who labored under chronic bronchitis and asthma. Cases of phthisis, too, have come under my notice in a similar way; but the fever in these instances has been rarely attended with spots. This latter, however, I have witnessed, the rash being most copious. Cases of chronic affections of the eyes, ulcers of the legs, and chronic diseases of the skin, are of very common occurrence in union with spotted fever. Lastly, I have witnessed fever, and in its very worst forms, with both primary and secondary syphilis. It is worthy of notice how little any of these affections are altered by the fever. Speaking generally of them, they are certainly not made worse; though such might be expected; at least of some of them. I have, however, seen

* I have also witnessed cases where all the symptoms were those of enteric fever, except that the spots were dark on the chest; and in the inguinal regions, assumed the character of purpura. I find notes, also, of one case where the spots were genuine petechiæ, and where ulceration of the bowels was found

† It is worthy of notice that these large and dark petechiæ, or by whatever name they are called, are not confined to typhus, but may be seen in puerperal fever, and in some cases of malignant scarlatina.

cases of disease of the skin, where it was got rid of, after the fever. But usually they go on as they did before. In my own experience it is only a state of derangement of the general health, and not any specific affection, which is likely to be bettered by spotted fever.

It may possibly not be out of place to put the above into a series of propositions.

1. That there is no form of fever peculiar to Ireland.

2. That in 1847–48, the epidemic which then prevailed in Ireland had existed in England for months previously.

3. That this epidemic, like all other great ones, traveled from east to west.

4. That the idea of different poisons, as a cause of the several varieties of rash, does not appear to be borne out by facts.

5. That the analogies derived from the study of the exanthemata are opposed to the idea of there being more than one poison.

6. That red and dark petechiæ may co-exist in the same patient, at the same time.

7. That either may precede the other. That some members of a family may exhibit spots—others not; all being ill at the same time.

8. That petechiæ may be almost exclusively confined to the abdomen, or to the upper half of the body; or exhibited in groups on the pectoral muscles, the front of the larynx, or strictly confined to the knees or elbows.

9. That they may be seen occasionally, but unequivocally, displayed on the face, and possibly on the conjunctivæ.

10. That bright lenticular spots, and few in number, are of frequent occurrence, without any other symptoms of enteric fever.

11. That fever without intestinal lesion may exist without any spots whatever.

12. That the same lesion may exist with dark petechiæ.

13. That petechial fever may run its course in patients affected with such diseases as hemiplegia, phthisis, syphilis, etc.

14. That large, dark petechiæ are not confined to typhus, but may be seen in puerperal fever, and cases of malignant scarlatina.

15. That in some very bad forms of fever, the veins allow the blood to exude in a very striking way; and together with this, serum, deeply tinged with blood, may be found poured out in the serous cavities.—*Dublin Hosp. Gazette, April*, 1857.

Art. III.—*On the Physical Climate of Scutari; and on the Nature of the Diseases of the Allied Troops during the Russian War, in* 1853, 1854, *and* 1855 : By William Aitken, M. D., Edin., L.R.C.S.E., Corresponding Member of the Society of Medicine and Natural History of Dresden, and of the Royal Imperial Society of Physicians of Vienna, late Commissioner at Scutari.

[To *The Glasgow Medical Journal*, (April, 1857, Quarterly,) Dr. Aitken has contributed an extended paper, having the title above mentioned,

which is to be continued, and from which a few extracts will be here reproduced as being not only illustrative of the sanitary conditions incidental to army operations, but also applying more or less to the great civil migrations under foreign skies, in new climates, and amid physical privations. In war as in peace, these great movements of humanity are so many instructive experiments upon a vast scale, showing the essential connection which exists between health and the physical comforts, especially among large aggregations of human beings in ships, mines, camps, and cities. Bullets and bayonets, swords and great guns, and all the destructive arms of war, by sea and land, prove less dangerous to conflicting armies than preventable diseases, provided the medical department be skilful and be well supplied with the means essential for the sick. Without the latter, Homer's view of the faculty cannot be realized :

> "A wise physician, skill'd our wounds to heal,
> Is more than armies to the public weal."

There is reason to believe that the British army of the Crimea, as well as the late American army of Mexico, was not provided with the "wise-physician" in many instances.]

The events of the late war against Russia will long furnish matter for the gravest reflection to the statesman, the warrior, and the physician. To the latter the subject teems with questions of the greatest interest; and when all the more minute details of the campaigns in Asia Minor, Bulgaria, and the Crimea become developed on the page of History, or recorded in such shapes and forms as can conveniently be referred to, the physician may then be able to form his judgment regarding the nature of those diseases which, at various times and places during the war, proved so fatal to the allied armies.

Scutari and Constantinople were the head-quarters respectively for the reception of the sick of the British and the French forces, during the greater period of the war; and the experience to be acquired in the numerous and extensive hospitals of the French, Sardinian, and British troops, was of the most comprehensive description.

The mean temperature of Scutari is almost intermediate between that of the south of England, in the vicinity of the sea (Jersey), and that of Calcutta, as shown in the following table :

	Jan.	Feb.	Mar.	Ap'l.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Calcutta......	66°2	69°8	80°0	85°4	85°7	83°7	81°8	82° 0	82°0	79°2	74°2	66°6
Scutari........	47°2	48°7	54°7	62°6	68°3	76°6	74°4	73°25	60°5	66°6	58°6	49°6
Jersey........	33°0	30°0	33°0	49°3	50°9	54°6	60°9	61° 1	61°0	54°1	46°4	46°4

At Calcutta, the greatest daily range of temperature takes place in December and January, when it amounts to about 18°; the least range is in July, when it is about 6°.

At Scutari, the greatest daily range of temperature took place in July and September, when it amonnted to 27° and 23°; the least in December, when it amounted to 15°.

Scutari lies in a direction about two miles east of the entrance to the Golden Horn, the port of Constantinople, and somewhat to the north of 41° of North latitude.

On the physical climate of Scutari, the effects of the absence of tidal influence on the shores of the Sea of Marmora must be taken into account. Where tides exist, decaying substances may be borne in now and then, but they have also a chance of being carried out again to the flowing current by the retiring tide. This is not the condition along the shores of the Sea of Marmora, and especially in the bays and inlets along the coast in the vicinity of Scutari. The water may be said to be in a measure stagnant, while it rippled almost imperceptibly on the shore. "In it there floated all forms of nastiness and corruption, which the prowling dogs, standing leg-deep as they waded about in search of offal, could not destroy." The smell from some parts of the shore was sometimes of the most noisome description, and emanated from the decaying carcasses of sheep, cattle, horses, dogs, birds, straws, sticks, vegetables, and sea-weed, and, in short, from all imaginable possible kinds of abomination, the result of decaying organic existence.

The historian who would give a full and accurate account of the medical experience of the late war with Russia, must bestow some care in bringing out the events of the following periods, some of which constitute the most important epochs in the medical history of the war, namely:

1. The period after the short residence at Gallipoli and Scutari, when the campaign of Bulgaria opens up with the sickness, disease, and mortality of the camps there.
2. The period when the men sailed from Varna to the shores of the Crimea, and the march from Old Fort to Balaklava.
3. The eventful history of the sickness, disease, and deaths in the camp before Sebastopol and at Balaklava.
4. The sickness, disease, and deaths during the transportation of the troops to the various camps and subsidiary commands in Turkey, and the seat of war in the Crimea; and more especially the deportation of the sick from the Crimea to Scutari, Kulalee, Therapia, Constantinople, Smyrna, Abydos, and Renkioi.
5. Nature of the sickness and diseases in the Russian camps, and their arrangements for the sick and wounded on the march.
6. The period when unprecedented services were rendered by Miss Florence Nightingale in the care of the sick and wounded.

Of the Physical Climate of Bulgaria, and the Sickness, Disease, and Mortality in the Camps there.—At Scutari, there was encamped from the end of April till the 13th of June, 1854, troops to the number of 12,000 men of cavalry and infantry; and the whole force, with few exceptions, lived under canvas. The ground they occupied was comparatively high, and appeared dry. For a fortnight towards the end

of April, the weather had been changeable, with occasional showers. The temperature was moderate, but variable, a hot day being frequently followed by chilly or cold nights. During the encampment here at this time, the health of the troops was good, but the fatal cases which occurred, though resulting from ordinary disease, were marked by an unusually rapid course. There appeared to be no decided tendency to the prevalence of any particular disease. A few cases of small-pox became developed at Gallipoli, and two cases were reported in the 95th regiment at Scutari.

Between the 1st and the 15th of June, the British troops embarked at Scutari for Varna in good health. The total force was reviewed on the anniversary of our Queen's birthday, amounting to about 15,000 men, who, for weight, stature, and strength, could not be surpassed by any troops in Europe. The Light Division embarked on the 1st of June; the Brigade of Guards on the 15th.

They were now to proceed to Bulgaria, a country, the resources and nature of which we knew little in a medical point of view. There they occupied camps at Varna, Aladyn, Devno, Gevrlekler, Monastir, Yeni-bazar, and Shumla, during a period of ten to twelve weeks. This period is a melancholy era in the medical history of the war.

Nature of the Diseases and Sickness.—The British army was scattered "broadcast" over a country from Monastir to Varna, a distance of 27 miles—a district known to be pernicious to the health of man, and, notwithstanding its exquisite beauty, a hot-bed of pestilence, disease, and death. Diarrhœa, cholera, fever, and dysentery soon verified by their ravages the name which the Turks gave to Devno, namely, "the Valley of Death." What at first sight seemed to be natural advantages, such as beauty of scenery, varied by hill and dale, wood, water, and vegetation, contained, at the same time, abundant evidence to the scientific that the elements of insalubrity existed also; and it may not be useless now to enumerate the unfavorable elements, which characterized the physical climate of the place.

1. In the mornings and evenings the encampments were often enveloped in dense and thick mists which appeared to come from the lakes. In the words of Russell, "the lake and the streams may be said to have exhaled death, and at night fat unctuous vapors rose up fold after fold from the valleys; creeping up in the dark, they stole into the tent of the sleeper, and wrapt him in their deadly embrace."

2. Green wood and brushwood had to be cut down to make ground for the tents to be pitched upon; a proceeding of the most imprudent kind in a sanative point of view, as is well known to the settlers in America and in India.

3. The marshy nature of the vegetation in the meadow lands, combined with the presence of amphibious animals of the batrachian kind, such as frogs and tortoises. The presence of the *Rana variabilis* is considered an unerring indication of an unwholesome and marshy locality.

4. The presence of innumerable flies of all shapes and color, and clouds of locusts, followed by numerous flocks of insect-eating birds, combine to point out an unhealthy physical climate.

5. The nature of the soil, combined with these features, would indicate to the geologist the unhealthy nature of the district.

6. The range of temperature.

The story of sickness, disease, and death in the Bulgarian camps may be related in a few words. About the middle of June, diarrhœa prevailed to a great extent in the camp of the Light Division, then at Aladyn. The men at that time were living on "ration brown bread" and water for breakfast, after which they were paraded and exercised for an hour or two in the hot sun (on one occasion four hours). The dinners consisted of lean "ration beef," boiled in water, and eaten with brown bread, without any seasoning to flavor it. No rice, sugar, tea, or vegetables were supplied, and the men drank the red wine of the country in abundance. They gradually left this camp and slowly advanced to Devno. It was considered by some that the neighborhood of Varna was not unhealthy; but simply that the large force, particularly of the French army, keeping so close round Varna, made it unhealthy: there were also about 7,000 Turkish and Egyptian troops in the vicinity. Cholera first broke out amongst the French troops at Varna, the Turks and Egyptian troops being also then sickly. Of those first attacked, 16 out of 25 men died, and diarrhœa became generally prevalent among the English troops.

About a month before embarking for the Crimea, cholera prevailed generally throughout all the troops.

General Health of the Troops in Bulgaria.—The general condition of the troops at Varna may be described as "*sickly.*" They were "*using up*" while there, to use the words of Dr. Mapleton. An estimated per centage of illness or sickness of the army during their twelve weeks' residence here, cannot be stated. Many men were weak and ill, and lost flesh rapidly, though they were not under medical care in hospital; and when asked as to their health, they could not definitely say what ailed them. The troops were depressed in spirits from inaction, and were terror-stricken from the suddenness and fatality of the attacks of disease. Long drills—which were put an end to by Lord Raglan—combined with bad tents, great heat, cold and dewy nights, fogs, morning and evening mists, great range of temperature, sour brown bread and ill-assorted food, combined to "use up" the strength of the men, and to put the army into that very unsatisfactory state in which it was previous to the embarkation for the Crimea.

Much difference of opinion prevails, both amongst professional and non-professional people, as to the healthiness of coarse brown bread; that is, bread composed of the whole wheat, merely crushed, without having been freed from the envelope of the seed. There can be no doubt that it is beneficial to many, as the irritation of the husks left of the grain tends to keep bowels open which may be naturally sluggish; but in districts where irritation of the bowels prevails, such bread must have an injurious tendency, even when well baked. But, supposing the wheat to be pure, every one knows how difficult it is to get such brown bread well and sufficiently baked. In consequence of the seed being crushed with its husk, the ferment acts less easily upon it, and the dough re-

quires longer time to rise than dough composed of fine wheat flour. The consequence is, that brown bread is, for the most part, damp and sodden in the centre of the loaf, and very soon turns more or less sour. Such bread is badly baked in the first instance, and afterwards undergoes a change by which it becomes sour—a change which very readily and soon takes place in hot weather. Such was the condition of the bread in Bulgaria, and also often throughout the following campaign. But that was not all: the wheat from which the bread was baked, consisted of barley, rye, and a black sort of seed, amounting to a fifth part of the whole sample; and it is said that clean wheat could not be got in the country, owing to the slovenly system of farming there. Is it a wonder, then, that such "brown ration bread" was most decidedly liable to cause bowel complaint, and was food of a dangerous kind in such a country and climate, especially when cholera prevailed?

Third Report of the Committee on the Army before Sebastopol, dated March 14th, 1855: This return shows "the total number of men of Lord Raglan's army, sick and wounded (of all arms), during each month from the landing in Turkey." It is as follows:

1854.		
April,	503	Average strength, 25,000. (April–September)
May,	1835	
June,	3498	
July,	6937	
August,	11,236	
September,	11,693	
October,	11,988	
November,	16,846	
December,	19,479	
1855.		
January,	23,076	
February (to latest date),	19,964	

Concerning this return, one of the most eminent statists of this country (W. B. Hodge, Esq., Fellow of the Statistical Society of London) has the following strictures: "These returns are found not to represent the average numbers sick during each month, but the total of those applying for assistance at the hospitals, and they cannot therefore be used to ascertain the average number of the sick."

We have also the following data from which to reckon the amount of sickness in the army of Lord Raglan when it left Varna for the Crimea.

The morning state of the army on the 2d of October, 1854, was as follows (*Appendix to Third Report*, p. 473):

Officers,	1,084
Rank and File and other effectives,	27,865
Sick,	6,777
Total of Lord Raglan's army on 2d October,	35,726

Of these 35,726 men there were 6,777 sick, being at the rate of 173 per 1,000 men. Among these the wounded of the battle of the Alma are included. The wounded at that battle consisted of 1,619, men and officers together. The number of sick present with the army at Balaklava on the 2d October was 328. At Scutari there were about 200

sick when the army left Varna. Deducting now the wounded at the Alma, the sick at camp at Balaklava, and the sick at Scutari, in all 2,147, there remains for the sick at Varna 4,630, and which, upon the total strength of the army at the period when the battle of Alma was fought, which amounted to 26,800 men—(*Appendix* 473, *Return No.* 5)—is at the rate of 173 men sick at Varna for every 1,000 men able to take part in the fight, or more than one-seventh part of the whole force was sick at Varna.

Of the Sickness, Disease, and Deaths in the British Army during the period embraced in the time when the Allied Forces embarked at Varna, and arrived in Balaklava.—The time embraced in this period is from the 4th till the 26th of September, 1854, and it is marked by the following epochs, namely: *first, the embarkation and the rendezvous in Baltschik Bay; second, the landing at Old Fort on the 14th of September; third, the adventures of the army during the first six days in the Crimea; fourth, the battle of the Alma on the 20th September; fifth, the famous Flank March and arrival at Balaklava on the 26th.* All these are embraced in a period of 22 days. During this short time the strength of the British army was diminished by 5,053 men. Of these, 353 were killed at Alma (*Third Report of Sebastopol Committee*, p. 473), 1,867 were wounded there (*loc. cit.*), 316 succumbed from disease or death, and 2,237 were sent sick to Scutari.

As there is no direct official document which states the above results in so many words, it is necessary for me to state the data whence I have derived the information.

First, then, it is approximately concluded that 28,053 men and officers embarked at Varna; secondly, it is stated by Major-General Bentinck, that about 23,000 men arrived at Balaklava by the flank march on the 26th September. Thus it is shown that the army lost in strength during this period 5,053 men. These are *officially* accounted for as follows:

Killed at Alma,	353
Wounded there,	1,867

We know also that, from the 18th till the 24th of September, there were sent from the Crimea to Scutari 4,104 men, including the wounded. (*Second Report*, p. 706.) The killed, the wounded, and the sick of the Crimea are thus represented by the number 4,457, up till the 24th September when the famous flank march commenced. If now we deduct this number from the difference between the number embarked at Varna and the number which arrived at Balaklava, we have 596 men to account for as rendered ineffective on the flank march. The numbers now stand as follows:

Killed at Alma,	353	
Wounded there,	1,867	=4,104
Sent to Scutari sick,	2,237	
Loss on the Flank March,	596	
Total,	5,053	
From casualities alone the loss was,		2,220
From sickness (of whom it is not known how many died)		2,833

The ratios of loss per 1,000 men on the number landed (namely 27,600) during twenty-two days may therefore be thus stated :

From disease alone,..................	102 per 1,000
From killed and wounded,...........	81 per 1,000
All causes,.........................	183 per 1,000

No one can review the records of this short period without lamenting the extreme uncertainty in the results of arrangements made, and the criminal neglect of the life of the British soldier. The hard-worked medical men of the British army were put, during this period, in an utterly helpless state, so far as they could be useful to the sick. They were put in a position disgraceful to humanity, and insulting to their profession. There is perhaps no other civilized nation in which military arrangements and the operations of war are conducted with so little deference to the judgment, and regardless of the advice of the medical profession, as is the case with the army of Great Britain. The French pay the greatest deference to the opinions of the medical element of their army ; but with us it is not so : and much of the loss of the British army, during the time we are now considering, is to be attributed to the non-compliance with the requisitions of Sir John Hall, and the absolutely necessary requirements of the medical staff.

Thus also writes Ch. B. Hearn, Esq., the surgeon of the 1st Royals: "The chief cause of the great sufferings of the sick and wounded of the British army may, I fully believe, be traced to the general, and, indeed, almost incredible apathy evinced by the authorities from the very outset of the expedition, with regard to everything connected with the medical department. When we sailed for the Crimea, we were obliged to leave behind us a new regimental medicine chest, that had been issued at home expressly on account of our embarkation for active service, and, in fact, everything, except two small panniers containing surgical instruments and a supply of medicine, which, as regarded quantity and variety, was most miserably scanty, with hospital canteens A and B, the sets of bedding that accompanied them, and the hospital marquee. No ambulance or vehicles of any description were allowed to be embarked, nor was any provision made for the conveyance of the wearied, sick, or wounded soldier, who had to endure a long march, and fight his way through an enemy's country, unless the ten stretchers given over to the band, who were also encumbered with their own packs and accoutrements, could be considered as such. Before we commenced our march from the landing at Old Fort, the hospital marquee, canteens, and bedding, were ordered to be reëmbarked, and there were but four water mules for the whole battalion. The sick or wounded were, in short, to all appearance, thrown entirely overboard, one small circular tent only being allowed for a whole regiment. The consequences soon became apparent. When men fell out of the ranks from exhaustion, or were seized with sudden disease, of which cholera was the most frequent, the medical officers could render no effectual aid. The regiment moved on, and the victims were compelled either to drag themselves miserably along or to perish where they lay. In short, they were left to their fate. The history of Alma is but too painfully true.

There were no means of carrying the wounded off the field, except the few bearers already alluded to; and whilst on the day following the battle there was not a wounded Frenchman on the ground, it was disgraceful to the British nation to see, even on the second day, many of its brave defenders suffering, without any human aid, where they fell."

Art. IV.—*Pulmonary Consumption.*

1. *The influence of Sea Voyages and Warm Climates on the progress of Pulmonary Consumption:* By M. Jules Rochard.—The following conclusions are arrived at on this subject by Mr. Rochard, after a most elaborate investigation of the subject. His paper is published in the "Memoirs of the Academy of Medecine of Paris," for 1856, and is an "ouvrage couronné dans la séance publique du 11 Décembre, 1855."

1. Sea voyages accelerate the progress of pulmonary tuberculization, much more frequently than they retard it.

2. This disease, far from being rare among marines, is, on the contrary, much more common among them than in the land army. It prevails with equal intensity in the hospitals of our ports, in our stations, in our fleets. The "officiers de marine," the physicians, the commissaries, all who are afloat, in a word, are subjected to this general law.

3. With rare exceptions, which must be admitted, considering some facts recorded by men of credit, phthisis advances on board ship with more rapidity than ashore.

4. The naval profession should be interdicted, in the most decided manner, to all youths who appeared to be menaced with phthisis.

5. The consumptive can get no advantage from sea voyages, except they be on board under certain special hygienic conditions, and change climate and locality according to the seasons and atmospheric vicissitudes; things which cannot be realized on board of ships with a mission to fulfil. Journeys by land, and prolonged stay in a well-selected country, allow of all the same objects being attained, with much less expense and danger.

6. Warm countries, taken as a whole, exercise an injurious influence on the progress of pulmonary tuberculization, and accelerate its course.

7. Those situated in the torrid zone are especially injurious, and stay there should be formally interdicted to the phthisical. The opinions of the physicians-in-chief of our colonies, and of the English colonies, comparative statistics of colonial and of European regiments in the two sets of countries, the frequency of phthisis in our tropical stations, and in those of England in the same latitudes, and a multitude of special observations, demonstrate this completely, and the examination of each particular locality confirms it.

8. Most hot climates, situated outside of the torrid zone, are equally injurious to the tuberculous. Some points on the confines of this region, and concentrated in a narrow space, are exceptions. This is owing to local conditions. To sojourn in them protects the phthisical from acute affections of the respiratory passages which accelerate the progress of tuberculization, permits a mode of life better adapted to keeping up the general strength, prolongs existence sometimes, and contributes always to a more easy termination of the same.

9. It is in the first stage of phthisis that there is any hope from emigration, and any reason to expect good results from it.

The localities to be recommended to the consumptive M. Rochard divides into four series, according to their respective advantages:

1. Madeira. 2. Hyères, Venice, and Pisa. 3. Rome, Nice, of which the reputation is constantly decreasing. 4. Menton, Villa Franche, Bay of Spezzia, Lake of Como, the Balearic Isles, the Shores of Greece, the North of Egypt, Algeria.—*Abs. Med. Sci., from Edin. Med. Jour.*

2. *Outline of Hygienic Code for the treatment of Consumption:* By BENJAMIN W. RICHARDSON, M. D., Physician to the Royal Infirmary for Diseases of the Chest. (*The Journal of Public Health, Abst. Med. Sci.*)

In giving the following rules, Dr. Richardson presupposes their general applicability to cases of consumption in all stages of the disease: in the premonitory stage; in the stage where the tubercular disposition is apparent; and in the next stage, when the local mischief is much further advanced. In the last stage even, though hope is lost, many of the rules may still be rigidly followed out with advantage, for by them the course of the disease may be smoothed, and life, perhaps, prolonged.

The Rules are ten in number.

RULE 1.—*A supply of pure air for respiration is the first indication in the treatment of the consumptive patient.*

No cosy room with a temperature of 70°, with every crevice closed, and with an atmosphere in a dead calm and laden with impurities, should be permitted. A temperature from 55° to 65° Fahr. is high enough. The fire, if one be wanted, should be in an open grate, and every arrangement should be made by which the freest possible current of air should be kept circulating through the room. If the patient is cold, he must go near the fire, and, if necessary, poke it, but he must on no account make the room warm by making it close. Dr. Richardson objects very strongly to stoves of all kinds, to heated pipes, and to every other mode of supplying warmth, except an open fire, as by these means the air is made too dry. Among other disadvantages attending the inhalation of a too dry air, is hæmoptysis, and a case is mentioned in point. "A gentleman whom I knew, and whose lungs were free from tubercle and other organic disorder, was constantly annoyed and troubled with slight attacks of hacking cough and blood-spitting. He was at a loss to account for the cause. At last he detected that the attacks always commenced when he was at work in his study. With the idea of being very warm and comfortable, and ignorant of the nature of animal heat,

he had introduced into a small room a large Burton's stove. To a stranger entering that room when the stove was in action, and the doors and windows snugly closed, the heat and dryness of the atmosphere would have been at once oppressive; but he, a close student, and constantly occupying the room under such conditions, had become accustomed to it as regards external sensation, but caught the mischief effectually in the chest. The cause of the symptoms being explained, the stove was abandoned, and the open fire-grate was again resorted to: the cough and blood-spitting at once disappeared without the administration of any medicine. A few weeks afterwards, thinking that the stove and the cough might only stand in the position of coincidences, our student resumed the use of the stove; and what is more, resumed also, as an effect, the cough and the blood expectoration. This time he became assured that the stove and the cough stood in the relation of cause and effect. The cause was once more removed, and ever since he has remained free of the effect." Free ventilation is especially necessary where gas is used. The bedroom should be large—including, if practicable, not less than 1000 cubic feet of breathing space; and, to prevent any unnecessary contamination of the air, no second person should sleep in the same room, and no light, particularly gas, should be burnt through the night. Two persons in one bed, according to Dr. Richardson, are out of the question under any circumstances. The inclemencies of the weather are not so much to be dreaded as confinement to the house. "I had occasion, some time since," says the author, "repeatedly to remark that if, from a few days' rain, the consumptives under my care were confined to their houses, instead of being able to take the daily out-door breathing always prescribed, the aggrevation of symptoms was always marked and universal. The appetite fell off, the debility became greater, the mind was less buoyant, the local mischief increased." Better go out with respirators and mufflers, under ordinary circumstances, than stay in. A muffler, which a patient may make for a few pence, being as good as any expensive respirator. This is made out of a piece of fine wire gauze, cut oval, so as to cover the mouth and nose, and fixed in the centre of a handkerchief, so that it may be tied on like an ordinary comforter, with the gauze in the centre, for breathing through.

The want of pure air is thought to be an objection to hospitals for consumption. Dr. Richardson admits "that a vast deal of good is, or may be, done at these institutions by the treatment prescribed by the physicians who attend at them, and whose lives are devoted to the study of the disease, there cannot be a doubt. But that it is either physiological, or sound practical treatment, to receive into these buildings consumptive patients, is an assumption I most earnestly dispute. I know the excellent spirit in which institutions of this kind are founded. I am fully aware of the care that is bestowed on the inmates; of the attempts that are made to introduce every hygienic improvement; of the order and cleanliness that prevail; of the kindness of the attendants; of the excellence of the diet-rule; and of the skill of the physicians.

"With all this, it is to me as clear as crystal, that to bring phthisical patients into such institutions is a great charitable mistake. The very care, and waiting-servant attention, that is paid to such of the invalids

as are in the first and second stages of the disease, is a cruel kindness. The remedy for them is to encourage and urge them to assist themselves and to exert themselves. Moreover, no kind of hygienic system, carried on in a large building filled with inmates, can make the air of that building in any way equal to the outer air, which it is so necessary that the consumptive person should breathe. Twenty patients, lying in one hospital ward, will throw off per minute into the air of the ward at least three and a half cubic feet of expired and impure gases, rendered in the phthisical the more impure by the pathological condition of the lungs. But the impure air thus exhaled vitiates by its diffusion twenty times its own volume of pure air; so that, in fact, in a ward with twenty patients, there are not less than seventy cubic feet of air spoiled per minute, and rendered unfit for the purposes of life. It may be granted that during the day, when the wards are less full, and many windows are open, and the movements of the inmates are active, the expired air may be fairly disposed of. But take a winter night of twelve hours; consider that in this period of time the twenty patients would, if they exhaled even naturally, vitiate fifty thousand four hundred cubic feet of air, which ought to be removed, and to be replaced by two thousand five hundred and twenty cubic feet of *pure* air for the use of respiration; and then reflect whether it is probable that such a ward can remain during the whole night uncontaminated. For, granting to the twenty patients a breathing-space of twenty-six thousand cubic feet, and even then it would require that the whole of the air in that space should be removed and replaced by fresh air fully twice in the one night. Against this, possibly, the artificial ventilating argumentists will urge that such a feat of ventilation is nothing at all, not worth considering, so easy to be done. M. Grouvelle would probably undertake to effect such interchange eight times in the night, or more; and if he undertook to do it eighty times, and did not succeed in doing it once, it might be difficult to prove the fact against him. But if he would take a strip of paper prepared for ozone, place it in a ward, however artificially ventilated, and place another similar paper in the open air adjoining the ward, it is a mistake if he should not find that there was a striking difference in the process of oxidation in the two localities; and that the great life supporter, oxygen, was in a condition to play a very much more active part in its outdoor than in its indoor work.

"The misfortune of a great hospital, with all its rooms communicating indirectly with each other, is, that the ventilation is always uncertain. There is, in fact, no properly ventilated space except the great vault of heaven, and no true ventilating power except in the combinations of atmospheric pressure, wind movements, and the force of diffusion.

"If special hospitals for consumptives are to be had, they should be as little colonies, situated far away from the thickly populated abodes of men, and so arranged that each patient should have a distinct dwelling-place for himself. They should be provided with pleasure-grounds of great extent, in which the patients who could walk about should pass every possible hour in the day; and with glass-covered walks overhead, where they could breathe open air, and yet be dry, even if rain were falling. Very expensive such an establishment would be, there is no

doubt; but it would, I take it, be infinitely more practically advantageous to treat ten patients in this manner, than ten tens in a confined brick-and-mortar box, through which of necessity some amount of invisible impurity, some trace of transparent poison-cloud, is constantly floating.

"The strongest argument in favor of consumption hospitals, is, that they receive those members of the community who could not at their own homes afford the same advantages as are supplied to them in the charity. Against this it is to be urged that the patients taken into the consumption hospitals are *not*, in this country at least, in any way to be considered as the representatives of the most needy and destitute sections of the community. These latter go to their last homes in the workhouses, or in their own poverty-stricken dwellings. The classes that fill the hospitals are often many grades above destitution; and are sometimes comparatively wealthy. They have access to a governor, who gives them an admission-letter, and they leave their own medical adviser to enter the hospital, not because they cannot find the means to live at home and be treated at home, but because, catching at every new suggestion offered to them, they set their hearts on getting into the hospital, as though it was a certain haven of rescue. In this scramble after admission some of course succeed; they leave their homes, they enter the hospital, and there the greater proportion of them either die or return back to their friends nearer death than before. A few recover or are relieved; but whether the same result would have occurred, if they had been subjected to the same medical and general treatment out of the hospital—is a question which may be left very safely answered in the affirmative."

RULE 2.—*Active exercise is an essential element in the treatment of consumption.*

Next to a free exposure to air, Dr. Richardson agrees with Drs. Rush, Jackson, and Parrish, in thinking that vigorous exercise is by far the most efficient remedy in the treatment of consumption. "Walking," he says, "is the true natural exercise, and the best, for it brings into movement every part of the body more or less, and, leading to brisker circulation in every part, causes a more active nutrition generally. The extent to which exercise should be carried will vary with the stage of the disease, and temporary accidents may for the moment stop it altogether, such, for instance, as an attack of hæmoptysis. But when exercise is advisable, the general rule is to recommend that it be carried out systematically, cautiously, and courageously, and that each exercise should be continued until a gentle feeling of fatigue is felt through the whole muscular system. Violent and unequal exertion of the upper muscles of the body is unadvisable. When restored from the fatigue of one exertion, another should be undertaken, and during the day this cannot be too often repeated. If the day be wet, then the exercise should be effected by walking in a large room, or by engaging in some game, such as skittles, billiards, or tennis.

If, in his waking hours, the consumptive patient can keep himself occupied pretty freely in muscular labor, he secures the best sudorific for his sleeping hours that can possibly be supplied; for as the cause of force is always expended in producing motion or action, so, to use the

words of Dr. Metcalf, 'the proximate cause of sleep is an expenditure of the substance and vital energy of the brain, nerves, and voluntary muscles, beyond what they receive when awake; and the specific office of sleep is the restoration of what has been wasted by exercise.' Cough is very much less frequent in the course of the night in him who has been subjected to exercise in the day; while sleep, when it falls, is more profound, and more refreshing.

"In summer time, when the temperature of the day is high, the morning and the evening time are the best adapted for the periods of outdoor exertion. In the other seasons, mid-day is preferable, as a general rule.

"I have sometimes been asked whether what are called gymnastic exercises are commendable in consumptive cases, and whether swinging is good. My idea on these points is that, in swinging, a person is much more usefully exercised when throwing the swing for his associates' pleasure, than in being himself swung. There is, in fact, but little faith to be placed in so-called scientific gymnastics. Anything that a man invents to overtop or compete with nature must need be paltry. Brisk natural movement of the limbs is all that the consumptive requires. He need not go out of his way after a sham, in the shape of shampooer; chopping wood is a good gymnastic feat, and playing at skittles is perfect in its way.

"The value of exercise is threefold. First, it checks waste of muscular structures, for muscles left inactive undergo a consumption, without any necessity for lung disorder. Secondly, it diverts the blood from the lungs, causes a more brisk circulation through them, and a more free distribution through the system at large. Thirdly, it induces a more free respiration; more oxygen is taken into the lungs, the body is restored to its vital purposes more surely, and, just in proportion as this restoration is effected, so is the restoration of disordered function and of disorganized tissue.

"In the performance of muscular exercise let the consumptive never encumber himself, or check the free movements of his body by strappings, loads of clothes, or carrying of weights, and the like. These are but tasks; they lead to unequal exertion in special sets of muscles, and such inequality of expenditure is that which is to be avoided. The treatment of consumption in an hospital is objectionable, again, in regard to exercise. Of what use to the consumptive is an acre or two of airing-ground confined at the back of his hospital? Let him be certain that where the gardener cannot make roses bloom, and peach trees blossom, no doctor can give to the anæmic cheek a permanent color, to a lost function its uses, or to an impoverished body its once healthy power.

"A last consideration on the value of muscular exercise is, that it is eminently useful in keeping the respiratory muscles in a state of active nutrition. For, if to the loss of capaciousness in the lungs to receive air, there is added a daily increasing failure in the muscles by which the acts of inspiration and expiration are carried on, it is clear that a double evil is at work. Now this double evil is most actively presented in consumption. As the respiratory muscles, together with the other muscles,

lose their tone, so do the general symptoms of exhaustion increase in severity; sometimes without very marked change in the pathological condition of the lungs. As a sequence, day by day, as the nutrition of these muscles decreases, and as they fail in tonic contractile power, they gain in excitability; so that the irregular spasmodic contractions to which they are subjected in the act of coughing are produced by the merest excitement, and the cough is more frequent as it becomes more feeble."

RULE 3.—*A uniform climate is an important element in the treatment of consumptives.*

No particular place is recommended for consumptives, but here is the formula for an hypothetical consumptive Atalantis. "It should be near the sea-coast, and sheltered from northly winds; the soil should be dry; the drinking water pure; the mean temperature about 60°, with a range of not more than ten or fifteen degrees on either side. It is not easy to fix any degree of humidity; but extremes of dryness or of moisture are alike injurious. It is of importance in selecting a locality that the scenery should be enticing, so that the patient may be more encouraged to spend his time out of doors in walking or riding exercise, and a town where the residences are isolated and scattered about, and where drainage and cleanliness are attended to, is much preferable to one where the houses are closely packed, however small its population may be."

RULE 4.—*The dress of the consumptive patient should be adapted to equalize the temperature of the body.*

RULE 5.—*The hours of rest of the consumptive patient should extend from sunset to sunrise.*

This rule, in Dr. Richardson's opinion, is imperative for many reasons. "First, because in all seasons the actual amount of rest required by the natural man is pointed out with the precision of an astronomical law by the course of the sun. In midwinter men require, for physiological reasons, more sleep than they do at midsummer, and just so much more as is indicated by the difference of night in these two periods. Observe how all animals, left to their own natural instincts, obey this law. Secondly, in our present artificial mode of life, we have to extend the day by the invention of artificial lights. But whenever a man shuts himself up in his closet, and makes a little sun out of his gas-lamp or candle, he is feeding that lamp with part of his own breathing store—the air around him. Worse still, the candle can, no more than the man, live alight without exhaling carbonic acid gas, and thus vitiating the atmosphere. A pound of oil burnt in a lamp produces, in burning, nearly three pounds; and every cubic foot of coal gas, rather more than a cubic foot of carbonic acid. The evil effects of carbonic acid on the lungs have been already described. Thirdly, as an artificial light is, by the mode in which it is produced, of necessity injurious, so, on the contrary, the pure sunlight is of the greatest worth in the acts of vitality. What sunlight does in a physiological way is undetermined; but its general influence has long been known and recognized. Plants banked up from light become blanched, and human beings kept for a long time in dark abodes become the victims of anæmia and scrofula.

"Thus, to fulfil the natural law regulating the times of sleep, to

escape from the artificial light, and to obtain the advantage of all the sunlight that can be secured, the consumptive patient should make the sun his fellow workman." But is not this going a little too far? Must the consumptive patient remain eighteen hours in bed in the shortest days of the year, and keep out of bed for the same period in the longest days? and ought the valetudinarian Laplander to remain in bed during his long winter, and to keep up throughout the entire summer? Surely not; and yet, upon this principle, he ought to have no alternative.

RULE 6.—*The occupation of the consumptive patient snould be suspended if it is indoor or sedentary; but a certain amount of outdoor occupation may be advantageous.*

Among other remarks which naturally arise when speaking upon a rule such as this, is one which deserves considerable attention. It is this: "In the case of parents having children of a consumptive tendency, therefore, the greatest care should be taken to obtain for them outdoor employment. But here a serious delusion comes into play. If the child is weakly, the fond parent urges, that it is unfit for hard labor and for outdoor vicissitudes; so it is sent to a tailor or shoemaker, to a clerk's office, a draper's shop, or to some occupation of an indoor character; by this grand, ignorant, and fatal mistake, it is added to the list of the two-thirds who swell the tables of consumption cases."

RULE 7.—*Cleanliness of body is a special point in the treatment of consumption.*

RULE 8.—*Marriage of consumptive females for the sake of arresting the course of the disease by pregnancy is morally wrong, and physically mischievous.*

RULE 9.—*The diet of consumptive patients should be ample, and should contain a larger proportion of the respiratory elements of food than is required in health.*

RULE 10.—*The medicinal treatment of consumption should in the main be of the tonic class.*

There is no doubt, as Dr. Richardson says, that the public expect to be cured by pills and plasters, and not by a series of instructions tending to bring men into obedience with the laws of nature, and therefore much credit is due to him for constructing this sanitary decalogue, even though subsequent inquiry may lead him to modify some of its articles.

ART. V.—*On the Surgical Anatomy of the Brachial Artery:* By M. S. BUCHANAN, M. D., Lecturer on Anatomy, Anderson's University.

THERE is no situation in the body which has been so frequently the subject of surgical operation, as the bend of the arm. From the earliest times, and in all countries, phlebotomy has been here practised. Gardeners, barbers, and blacksmiths have been more frequently the operators than the well-educated surgeon, and lancets of every size, shape, and quality have been the instruments employed. When such has been the

state of matters, need we be astonished at the consequences resulting from this operation, simple though it be, or at the lamentable injuries inflicted by such daring? Sangrado was a paragon of knowledge and dexterity when contrasted with the bodily or mental powers exhibited by the classes above alluded to, who, till a late period, in many of our country parishes, monopolised this branch of operative surgery.

Why this particular part of the body was selected for this operation, in the early periods of the art, or why, in later times, surgeons still persist in invariably making choice of the median basilic vein, as the only one in the body from which venous blood is to be obtained, I have been at a loss to understand. The young student must have remarked in his dissection of this part, how variable is this vessel, both as to size, position, and relations, and how dangerously situated over the semilunar fascia of the biceps muscle, and overlaying the brachial artery. The great diversity also of adipose tissue, so frequently found deposited between the cutis vera and this vein, more especially in females, renders this situation the most hazardous in the body for the performance of this operation. Two inches below the bend of the arm, the subcutaneous radial, ulnar and median veins will be found nearly as large as the median basilic, and separated from their respective arteries at so great a distance, as to render it impossible, even for the most ignorant or daring, in making choice of any of them for phlebotomy, to do any serious injury.

'Tis fortunate that fashion has made a great change in the treatment of diseases by phlebotomy of late years, substituting other equally efficient and more safe remedies. Well do I recollect, not many years ago, of the bloody scenes exhibited in the waiting room of our Infirmary on Sundays, where patients, by the dozen, were petitioners to the attending surgeons for this operation, which, in their estimation, was the panacea for all diseases; and too frequently were their wishes complied with, in order to give the pupils in attendance an opportunity of showing their dexterity. In private practice also, the time is not distant, when, if there was no symptoms to contra-indicate its performance, this operation was without fail had recourse to, once, twice, or thrice, as a fine specimen of what was then designated active or energetic practice. Lancet cases, containing from six to twelve instruments, were constantly carried by every medical man, whether physician or surgeon, and a relay was generally in the hands of the instrument-maker, preparing to take the place of those unfitted for service. What a splendid caricature might not a Hogarth or a Cruickshanks have made of the surgical leech of those bygone times! A fat wife is attacked with pleurisy, and calls in the aid of a young surgeon, who advises phlebotomy, and, in the presence of some of the patient's friends, proceeds to bandage the arm in the usual way, in order to start the veins; he rubs the fore-arm towards the bandage, but alas! no vein becomes visible, in his anxiety, he thinks he feels something very like it, he plunges his lancet where it ought to be, but instead of blood, nothing but fat fills up the wound made by his instrument; ashamed at his blundering, and blushing at his want of dexterity, he is determined now not to be beat; he rubs vigorously the hand and fore-arm, and with redoubled courage and firm grasp,

he plunges his lancet through the protruding fat, deep into the subjacent parts, when, instead of venous blood, a stream of vermillion-colored fluid darts into his face, and proclaims to the bystanders that the brachial artery has been punctured, and the life of the patient endangered. From what has been above stated, it must be evident that wounds of the brachial artery, either by the side of the median basilic vein, or by its being tranfixed, have been by no means unfrequent; and thus we find Mr. Harrison, in his excellent monograph on the surgical anatomy of the blood vessels, arranging the injuries of the artery under four divisions:

1. Circumscribed aneurism, in which the pouch communicating with the wounded artery is small and well defined.

2. Diffuse aneurism, where the disease extends along the line of the artery from the injured spot towards the axilla.

3. Aneurismal varix, in which adhesion of the posterior wall of the transfixed vein to the anterior wound of the artery, allows a free jet of arterial blood to pass from the one into the other.

4. Varicose aneurism, where the transfixed vein communicates indirectly with the wounded artery by means of a cyst of variable size, the result of adhesive inflammation.

There is no question in surgical anatomy more important than the treatment of the above injuries, none where the opinions of authors are so varied, and no one which demands a more careful revision. In no part of the vascular system is the anastomosis more free than around the elbow joint. The recurrent branches of the radial, ulnar and interosseous arteries, meet so directly those of the superior and inferior profunda and anastomotica magna, that even the usual coarse injection used in the dissecting-room, is frequently found to pass from the one series of vessels to the other. Such being the case, one would imagine that if the brachial artery were wounded at the bend of the arm, the principle now so unanimously adopted in the case of wounded arteries, in every part of the body, of the application of a ligature on each side of the injured spot, would be here rigidly adopted; yet, strange as it may appear, this important surgical axiom has been set at nought by some of the most talented of our own country, as well as by those on the continent. Dr. Colles of Dublin thus expresses himself: "I have repeatedly operated, and with success, for the cure of circumscribed brachial aneurism, in consequence of injury to the artery in performing venesection. I have frequently also assisted others in operating for the same cause, and with the same result; and I have never yet found it necessary to open the aneurismal sac to look for the vessel below the tumor, or to apply more than one ligature around the artery, and which I think ought to be tied as near as possible to the seat of the disease." "Again," he adds, "I have known several cases of this species of aneurism, and from the same cause in young persons, in whom a perfect recovery was accomplished by the application of gentle pressure on the parts, by bandaging the fingers, hands, and fore-arm, by rest and constitutional treatment. I should therefore recommend, in almost every recent case of this injury, a trial of this practice, before having recourse to an operation." Mr. Harrison also, in the work formerly alluded to, remarks in a foot-note at page 184: "Were a surgeon present at or

immediately after the occurrence of such an accident as wound of the brachial artery in venesection, should he at once extend the wound so as to expose the artery, and tie it both above and below the opening, or should he close the external wound, and attempt the cure by compression? I do not," he adds, "consider this question to be decidedly settled, even at the present day; my own experience," he concludes, "would incline me to give a fair trial to the latter practice." Now, without adverting to the cases of unsuccessful treatment of wound of the brachial artery by compression, which I have seen in the wards of our hospital, or to those treated by my colleagues, I would put the question to both Dr. Colles and Mr. Harrison, what would be their practice in a case of punctured wound with a penknife, of the radial or ulnar arteries at the lower third of the fore-arm, or of the brachial artery at the middle third of the arm? The answer would be, unhesitatingly, apply a ligature on both sides of the spot injured, to prevent collateral circulation, and thus secure the patient against the risk of secondary hæmorrhage.

Then why make an exception to this important principle, because the wound at the bend of the arm has been inflicted with a lancet, and in a part far more liable to secondary hæmorrhage than any of the others above adverted to? I may be told that in some cases success has followed the plan by compression, or by the application of the single ligature on the heart side of the injury. I answer, look to the formidable catalogue of aneurisms enumerated in the first part of this paper, as the result of this vaciliating practice. Again, it has been affirmed that an exception must be made to the application of the double ligature on each side of the wounded artery at the bend of the arm, in consequence of the venous plexus which is so frequently found here. My reply is, that he would be a sad specimen of professional timidity and incapacity, who would have respect for such veins as the median cephalic or basilic, when the brachial artery has been wounded; besides, the most slender knowledge of anatomy should demonstrate, that with very little dissection, either of those veins, in such a case, could be turned aside, and the wounded artery thus secured above and below the injured spot. 'Tis the great misfortune in all such cases of wounded artery in phlebotomy, that the person who has been the culprit is always anxious to conceal his blunder; he is the last man who should be allowed to perform the delicate operation of securing the injured vessel; he is, for the moment, the advocate of the palliative plan by compression; he bandages the arm firmly with the vain hope that his *faux pas* shall pass undiscovered, and it is only after some days or weeks, when the dire consequences of bandaging are disclosed, that some more experienced surgeon is consulted. Whereas, had the nature of the injury been divulged at the moment, and a consultation called on the case, certain I am that the unanimous decision would be, apply a ligature on each side of the lancet puncture, as near as possible to the injury. Mr. Guthrie, in his admirable treatise on the diseases and injuries of arteries, has the following case in point: "A poor man had the artery opened at the bend of the arm in bleeding, and the operator suspecting the injury he had committed, applied a compress and bandage to restrain the hæmorrhage,

which, nevertheless, recurred several times, on which he was sent to the hospital with the arm now inflamed, swelled, and injected with blood. The brachial artery was tied close to the wounded part, but as the bleeding returned, it was again secured higher up; hæmorrhage again took place, amputation was had recourse to, and the patient died exhausted." On dissection, it was found that the brachial artery was the vessel injured, nearly at its bifurcation; and Mr. G. adds in his own clear and decided way, in such a case three ligatures would have been required, one on the main trunk, and one on its radial and ulnar branches. Even Mr. Harrison himself allows that, in almost every case of diffused aneurism, the result of injury in venesection, search must be made for the wounded vessel, and a ligature applied; but he adds most candidly, in many cases of this nature, amputation must be had recourse to.

In conclusion, I would ask, why all this indecision, why this confusion of practice, but from a disregard of the great principle applicable to injured arteries in every part of the body, whether covered by muscles, or complicated with veins or nerves; of enlarging the wound over the vessel, and securing it above and below the injured spot? Of one thing I feel certain, had the above simple rule been rigidly adhered to in all cases of wounds of the brachial artery at the bend of the arm, many aneurisms would have been prevented, some limbs saved, and not a few valuable lives preserved.—*The Glasgow Med. Jour., April*, 1857.

ART. VI.—*Inflammatory Affections, and their treatment by Bloodletting and Antiphlogistis.*

Reflections on the results of experience as to the symptoms of Internal Inflammation, and the effects of Bloodletting during the last forty years: By W. P. ALISON, M. D., D. C. L., Emeritus Professor of Practice of Medicine, Edinburgh. ('Edin. Med. Journal.' March, 1856.)

Observations on the results of an advanced diagnosis and pathology applied to the management of Internal Inflammations, compared with the effects of a former antiphlogistic treatment, and especially of Bloodletting · By J. HUGHES BENNETT, Professor of the Institutes of Medicine and of Clinical Medicine in the University of Edinburgh. ('Edin. Med. Jour,' March, 1857.)

Reply to Dr. Bennett's Observations on the results of an advanced diagnosis and pathology in the management of Internal Inflammations: By W. P. ALISON, M. D., Emeritus Professor of Medicine, Edinburgh. ('Edin. Med. Jour.,' May, 1857.)

A Reply to the preceeding paper of Dr. Alison: By J. HUGHES BENNETT, M. D. ('Edin. Med. Jour.,' May, 1857.

THE Medical and Chirurgical Society of Edinburgh has recently been the scene of a *passage d'armes* between Dr. Alison and Dr. J. Hughes Bennett, upon the change which has taken place in the treatment of inflammatory affections. It is admitted by both combatants that the practice of bleeding in acute inflammations has, within a recent period, undergone a great change—that, whereas formerly it was the rule to

bleed promptly, largely, and repeatedly, that now such bleeding is rarely practised and rarely necessary. According to Dr. Alison, antiphlogistic remedies, and more especially bloodletting, were formerly highly successful in arresting the disease, whereas now they are actually injurious; and the inference he draws is, that inflammation itself is no longer the same—that its type, and more especially the febrile symptoms accompanying the inflammation, have altered from an inflammatory to a typhoid type, and that the practice has very properly changed accordingly. According to Dr. Bennett, on the contrary, this great revolution in treatment is the natural consequence of an advarced knowledge in diagnosis and pathology. In the first place, Dr. Bennett thinks that little reliance can be placed on the experience of those who, like Cullen and Gregory, were unacquainted with the nature of internal inflammations and the mode of detecting them. In the second place, he thinks that inflammation is the same now as it ever has been, and that the analogy sought to be established between it and the varying types of fever is fallacious. In Dr. Bennett's opinion, moreover, the principles on which bloodletting and antiphlogistic remedies have hitherto been practised are opposed to a sound pathology. How these principles are thus opposed will appear in what is said upon the natural progress of inflammation.

"If" says Dr. Bennet, "we watch the natural progress of inflammation in any of the textures of the body, we observe that it terminates in two ways, 1st., by vital changes of growth of different kinds in the exudation, constituting what has hitherto been called suppuration, adhesion, granulation, cicatrization, the healing processes, etc., etc., and, 2dly, by death of the exudation, which, if rapid, putrefies, producing gangrene, or, if slow, disintegrates, causing ulceration. The first series of changes are not destructive, but formative and reparative. Suppuration especially should be looked upon as a kind of growth, which enables the exuded and coagulate blood-plasma to be rapidly broken up, and eliminated from the economy. If so, instead of being checked, it should be encouraged as much as possible; a very different doctrine from what has hitherto prevailed. Again, everything that lowers the vital strength and weakens the economy, must impede the nutritive processes of growth, and tend more or less to a slow or rapid death of the exudation. Bloodletting, especially, has this tendency, and must, therefore, be wholly opposed to the rapid disappearance of inflammation; for example:

"If a bone be fractured, inflammation occurs around the injured part, and exudation is poured out, which undergoes vital changes, whereby ultimately it is transformed into bone. If soft parts are destroyed or removed, the exudation poured out from the injured vessels undergoes other vital changes, whereby it is transformed into fibrous tissue, constituting, first granulations, and then a cicatrix. After subcutaneous section of tendon, with separation of its extremities, the transformation is more perfect, producing, as in the case of bone, a growth exactly similar to the one which was injured. If a violent blow or injury has been received, a greater or less amount of exudation is infiltrated among the contused and torn tissues, which is transformed by cell-growth into

pus, which, if it can be evacuated externally, is soon got rid of, but if not, is on the disintegration of the cell absorbed and excreted from the economy. If, under other circumstances, the pus is absorbed as rapidly as it is formed, the inflammatory swelling is said to be resolved or discussed; if not, it collects in the form of a fluid to constitute an abscess. Surely it cannot be maintained that, in any of these cases, we can favor these reparative processes by bloodletting and lowering the strength of the economy. On the contrary, they have always been found to be best perfected in individuals of vigorous constitutions, whilst in scrofulous or broken-down and weak persons, they proceed slowly or not at all.

"But in internal inflammations, say of the lungs or pericardium, are the processes different? Certainly not. In the one case the exudation is converted into pus-cells and absorbed, and in the other into fibrous texture, causing adhesions. But because these processes have been hid from view, physicians have supposed that, instead of treating the inflamed parts as the surgeon does, he ought to attack the general symptoms which result from the lesion. In cases of fracture and contusion, there are also febrile symptoms, increased pulse, and so on. But does the surgeon imagine that callus will form better, or his abscess be resolved, or reach maturity sooner, by general blood-letting and antiphlogistics? Experience teaches him otherwise, and in the same manner it is certain that such treatment does not favor the natural termination of internal inflammations.

"It may be well, however, in further proof of this, to point out a little more particularly what are the changes which a pneumonia and a pericarditis do go through, as illustrative of the proposition we seek to establish.

"In pneumonia the exudation is infiltrated into the air-vesicles and minute bronchi, and between the fibres, bloodvessels, and nerves of the parenchyma, imprisoning the whole in a soft mass, which coagulates and renders the spongy texture of the lung more dense and heavy, or what is called hepatized. This accomplished, no air can enter, the circulation in the part is arrested and the nerves compressed, and the object of nature is now to reconvert the solid exudation once again into a fluid, whereby it can be partly evacuated from the bronchi, but principally reäbsorbed into the blood, and excreted from the economy. This is accomplished by cell-growth. In the amorphous coagulated exudation, granules are formed, around groups of these cell-walls are produced, and gradually the solid amorphous mass is converted into a fluid crowded with cells. This is pus. The cells, after passing through their natural life, die and break down, whereby the exudation is again reduced to a condition susceptible of absorption through the vascular walls, and once again mingles with the blood, but in an altered chemical condition. In the blood, the changed exudation (now called fibrin) undergoes further chemical metamorphoses, whereby, according to Liebig, it is converted, by means of oxygen, into urate of ammonia, choleic acid, sulphur, phosphorus, and phosphate of lime. The urate of ammonia, by the further action of oxygen, is converted into urea and carbonic acid; the choleic acid into carbonic acid and carbonate of ammonia; the sulphur and

phosphorus into sulphuric and phosphoric acids, which, combining with an alkali earth, form sulphates and phosphates. If it should happen that the quantity of oxygen taken is not sufficient completely to accomplish this cycle of changes, then, instead of urea, either urate of ammonia appears in the urine, or if the ammonia have entered into any other combinations, pure crystals of uric acid or fibrin. In consequence of these or similar changes, the exudation is finally removed from the economy.

"In a pleurisy or a pericarditis, the transformations occurring in the exudation are different. Let us follow them in the case of pericarditis, as we have carefully described them in pleuritis in another place. When a severe inflammation of the pericardium occurs, the liquor sanguinis is exuded in considerable quantity, separating the serous layers to a greater or less extent. After a time the fibrin coagulates and forms a layer which attaches itself to the membrane, whilst the serum of the blood accumulates in the centre. The coagulated fibrin at first assumes the form of molecular fibres, plastic or pyoid cells are formed in it; others throw out prolongations, so as by their union to form a plexus, which, communicating with the vessels below the serous membrane, renders the exudation vascular. Gradually the surface assumes the appearance of a villous membrane, as well as the absorbent functions of one. The enlarged villi frequently contain vacuoles or spaces, reminding me strongly of the placental tufts, than which nothing can be imagined more perfectly adapted for the purposes of absorption. In consequence, the serum now disappears, the two false membranes are brought into contact, and thus absorption, as soon as it is no longer required, is put an end to, and adhesion occurs. The matters absorbed into the blood pass through the same series of changes as those in pneumonia do, and are eliminated from the economy in a similar manner. Such is the natural progress of pericarditis.

"The two kinds of processes now described exhibit the same wise design in pathological as we everywhere find in physiological actions. In the vascular tissue of the lung, new blood vessels are unnecessary. But in the non-vascular serous membrane, they must be formed to bring about removal of the morbid products. In the one case the entire exudation is transformed into cells, to produce rapid disintegration and absorption, which latter is easily accomplished by the already formed numerous vessels of the lung. In the other case, the exuded liquor sanguinis is separated into solid and fluid parts, and as there are no vessels in the serous membrane, they are formed in one portion of the exudation to cause absorption of the other.

"During the progress of these essentially vital acts and modes of growth and formation, how can it be supposed that lowering the strength by bloodletting, can influence them in any way except for the worse; that is to say, weakening that power on which the transformations depend?"

In the last place, Dr. Bennett attempts to show that all positive knowledge of the experience of the past, as well as the more exact observations of the present day, alike establish the soundness of his position. The history of pneumonia is appealed to, and the answer

appears to be very conclusive. At any rate, Dr. Alison allows it to pass unchallenged. Appealing to this history, then, it would appear that the result of a vigorous antiphlogistic treatment of pneumonia, as formerly practised in the Edinburgh Infirmary, in the Hôpital la Charité, at Paris, and elsewhere, is a mortality of 1 in 3 cases; that the result of a treatment by tartar emetic in large doses, as practised by Rasori, and more recently by Dietl, is a mortality of 1 in 5 cases, or, according to Laennec, of 1 in 10; that the result of moderate bleedings, as in the treatment of Grisolle, is a mortality of 1 in 6½ cases; and that the result of a dietetic treatment, with occasional bleedings and emetics in severe cases, as with Skoda, is a mortality of 1 in 7, and if pure, as under Dietl, a mortality of 1 in 13. These are data derived from the experience of large public hospitals. Dr. Bennett also shows that the mortality from pneumonia in the army and navy, where the malady has arisen for the most part in healthy able-bodied men, is also 1 in 13. And, lastly, Dr. Bennett shows that the result of his own practice at the Edinburgh Royal Infirmary, during the last eight years, has been to reduce the mortality still further, namely to 1 in 21⅔ cases, or to 1/7 only of the numbers of twenty years ago. In this practice no attempt is made to cut the disease short, or to weaken the pulse and vital powers; but, on the contrary, the aim is to further the necessary changes which the exudation must undergo in order to be fully excreted from the economy. To this end salines are given in small doses, during the period of febrile excitement, with a view of diminishing the viscosity of the blood. As soon as the pulse becomes soft, good beef-tea and nutriments are ordered; and if there be weakness, from four to six ounces of wine daily. As the period of crisis approaches the excretion of urates is favored by giving, three times a day, a diuretic, consisting generally of half a drachm of nitric ether, sometimes combined with ten minims of colchicum wine; but if the crisis occurs by sweat or stool, no care is taken to check it in any way.

The question, no doubt, is one of considerable difficulty, and much remains to be proved before it can be finally disposed of, but at the same time we do not hesitate to say that our sympathies, both in pathology and practice, are with Dr. Bennett rather than with Dr. Alison. At any rate, we cannot allow that Dr. Alison has advanced sufficient evidence to show—and this is the great point of his argument—that bleeding and other severe antiphlogistic measures have ceased to be necessary because inflammation itself has become more asthenic than it was formerly.—*Abstract Med. Sci., July*, 1857.

ART. VII.—*Medicinal and Surgical Uses of the Perchloride of Iron.*

IN the sitting of the Academy of Sciences on the 29th of June, 1857, M. Deleau read a memoir on the *use of the perchloride of iron in diseases;* of which the following paper is a summary translated from the report

in *L'Union Médicale* of July 11th, a valuable exchange of the *N. O. Med. and Surg. Jour.*

The hæmostatic properties of the perchloride of iron, I have turned to account in hæmorrhages in general, agreeably to the experiences of M. Pravaz, from which I have been insensibly led on to its use from uterine hæmorrhages to leucorrhœa, thence to blennorrhagias, chancres, ulcerations of the vagina, and scrofulous affections. After having experimented with the perchloride of iron for two years in my infirmary at Roquette, which contains 80 beds, where every variety of disease has been admitted, I am enabled to draw the conclusions which follow: 1. The perchloride of iron used internally and externally is free from danger. 2. The perchloride of iron is the most powerful hæmostatic known. 3. It is not only a modifier of the living tissues, but acts on the enteric mucous tissue as a therapeutic agent, as in blennorrhagia, leucorrhœa, bronchial catarrh, etc. 4. The perchloride of iron is an anti-syphilitic, seeing that it cures venereal chancres, ulcerations of the vagina and of the uterus, without producing the manifest and fearful dangers caused by the nitrate of silver, and the preparations of mercury and iodine. 5. The perchloride of iron is a medicine of great potency (*grande puissance médicatrice*) in scrofulous affections.

On the use of Perchloride of Iron as a hæmostatic during operations: By M. Maisonneuve; (*Mon. des Hôpitaux.*)—A correspondent of this journal states that one of the principal elements of success in the difficult and dangerous operations M. Maisonneuve is famous for undertaking, is the remarkable use he makes of hæmostatics during their performance. He cites a recent case, occurring in a lad of sixteen, of fungous tumor of the dura mater, the growth of which, after being temporarily arrested by ligature of the carotid, increased very rapidly, and was accompanied by exhausting hæmorrhages. M. Maisonneuve determined upon its removal, but the tumor bled on the slightest contact, and the patient would not be able to bear the slightest loss of blood. The line of incision extended from the anterior parts of the ear to the summit of the head, and descending along the nose, was carried backwards, and then upwards to the base of the jaw, and its point of departure. A great number of arteries were thus divided, five or six of which, by reason of their anastomotic enlargement, had acquired almost the size of the radial artery. Intelligent assistants immediately compressed them with the finger, but it was impossible to thus continue the dissection without exposing the patient to the danger of death from syncope. M. Maisonneuve therefore applied to each vessel a little pledget of charpie, soaked in perchloride of iron, which was allowed to attach itself to the wound. At every stroke of the bistoury or scissors he applied a new plug, so that during the operation the patient scarcely lost a spoonful of blood; and when the tumor had been entirely removed, the entire surface of the wound was found completely dried and tanned, and was at once dressed, without the necessity of the application of a single ligature. The brown eschar which covered the

wound was detached about the twentieth day, without giving rise to any hæmorrhage ; and although the cure can scarcely be expected to prove radical, the patient for the present is perfectly well.—*Ranking's Abs.*

On the use of Perchloride of Iron in Panniform Keratitis. By M. FOLLIN. (*Archiv. Gén. de Méd.*)—The medical profession of Lyons, to whom we are in some measure indebted for the introduction of the use of the perchloride of iron as a therapeutical agent, are much interested just now in its application to the treatment of panniform keratitis. This disease is one of great severity, on account of its tenacity, its relapses, and its incessant aggravations, and finally on account of the impairment or total loss of sight to which it leads. Among the numerous methods which surgeons have employed in its treatment, cauterization and annular division of the vessels supplying the new growth, have doubtless produced successful results ; but their efficacy is not such as to leave nothing more to be desired. Their employment is not always easy, and, in the case of infants, oftentimes impossible.

To destroy the very minute vessels running from the surrounding conjunctiva to the surface of the cornea being the principal indication, M. Follin conceived the idea that this might be accomplished by means of the perchloride of iron. This powerful astringent arrested the abnormal circulation by coagulating the blood in the small vessels, which, consequently, being no longer required, were absorbed, and the cornea regained its transparency. Such are the results obtained by MM. Follin, Broca, and Gosselin, in several cases reported.

M. Follin makes use of the perchloride of iron in a perfectly neutral state, at 30° (Baumé). A single large drop is introduced into the eye by means of a quill. The first effect is a burning pain and a sensation of powerful constriction, which gradually diminish in the course of a quarter of an hour. The heat is, however, more supportable than that produced by many other agents in use, the sulphate of copper for example. If the eye should continue injected and phlogosed, cold applications and gentle astringents should be resorted to : among which latter M. Follin prefers a decoction of rhatany. The perchloride is not repeated for two or three days, and marked amelioration is generally observed after the third or fourth application ; the vascularity of the cornea is already diminished, the photophobia has nearly disappeared, and the sight made clear. It is rarely necessary, in order to produce a complete cure, to repeat the remedy oftener than ten or twelve times, frequently four or five applications are sufficient.

The presence of superficial ulcers on the cornea does not contraïndicate the employment of the remedy.—*Ibid.*

Treatment of Nævus by the Perchloride of Iron.—The perchloride of iron still holds its place as a very useful agent in the treatment of some forms of nævus. Mr. Lawrence in St. Bartholomew's, and Mr. Cock and Mr. Hilton in Guy's, frequently employ it as at first proposed, by means of injection. Used in this way, its chief advantages are in cases in which the growth is too large to be ligatured or excised. Repeated injections of small quantities at a time appears to be the most

successful method, as larger ones risk sloughing. There is a case now in the Middlesex Hospital under the care of Mr. De Morgan, in which a nævus of the middle of the upper lip spread rapidly and ulcerated through the lip, leaving a large fissure. In this, by the use of the perchloride, much advantage has been obtained; the disease does not appear to be spreading. The child's condition is now that of a single harelip, both edges being, however, involved in nævoid structure. Mr. Bowman, in two cases recently under his care, in which the nævus was on the eyelid, has employed the perchloride, introduced by a thick ligature of silk. One of these was that of an infant at the Ophthalmic, on whom we saw him operate the other day. The nævus was about the size of a sixpence, and involved the centre of the upper eyelid, being partly cutaneous and partly under the skin. To have tied it would have involved a subsequent eversion of the lid; and it became a problem of much interest to cure it without leaving a scar. The plan adopted was to draw through its centre two large ligature threads previously soaked in the perchloride. To prevent the threads from being squeezed dry in entering the skin, punctures were made in the latter with the point of a knife, and a broad needle was employed. So complete was the coagulating power of the fluid, that the threads came out quite unstained, and not a drop of blood escaped from the punctures. This having been done, a small actual cautery, about the size of a probe, was introduced into the middle of the nævus, and made to burn subcutaneously a little patch in its centre. The seton threads were to be taken out the same evening. It was hoped that the irritation, etc., which must follow these procedures would destroy the morbid vascularity of the part; and the plan altogether struck us as exceedingly likely to be successful, and at the same time possessing the great advantage of being quite free from risk. Its success it will be for time to determine. With the perchloride, in cases in which the nævus is too large to be safely tied, much patience must be exercised. Many injections will be required, and the shrinking of the vascular tissue will often not be nearly so great at the time as it will become after the lapse of a few months. As exemplifying the dangers of the ligature, we may mention that the writer assisted a fortnight ago in tying a very large nævus on the side of the face in a case in which the infant, healthy at the time, died a week afterwards, and probably from the irritation caused.—*Med. Times and Gazétte, Braithwaite's Retrosp., March* 21, 1857.

Perchloride of Iron in Hemorrhoids.—M. Thierry states that he treats hemorrhoids, even when large, by first blistering them, and then applying the perchloride of iron to the denuded surface, under the influence of which they shrink and disappear. The cure may not be radical, and they may reäppear under the influence of the causes that originally produced them; but this is only the case after a considerable period, and in the meantime health is restored and occupation resumed. M. Thierry employs the same treatment with success in varix.—*Ibid.*

ART. VIII.—*Medical Education.*

THE following extracts are taken from the elaborate Annual Address delivered in May, 1857, before the Medical Society of the State of Pennsylvania, by the learned Dr. R. La Roche, of Philadelphia, President of the Society.

These extracts afford a faint idea of the number, nature, and concentrativeness with which fifty-one large pages can be packed with unpalatable truths. The legal sophism that, the greater the truth, the greater the libel, fortunately, is not a maxim in science. Although "few are so wise as to prefer useful reproof to treacherous praise," yet Dr. La Roche comes forth *pro patria*, disguising nothing, flattering none.

Dr. La Roche says: In this country, as every one knows, we have shown a still greater tendency towards radicalism, so far as regards the organization of the medical profession, as we unfortunately show in most other points connected with the social state. In almost all the colleges of the country, the necessity of a preliminary education is done away with. Indeed, I am not aware, that in any, pains are taken to ascertain whether the aspirant to the honors of the profession can correctly spell the commonest words in the English language and construct the simplest English sentence; while no attention is paid to the nature of his deportment, manners and language. At the same time, in all those institutions throughout the broad extent of the land—and, in this respect, those of the State of Pennsylvania form no exception to the rule—the course of instruction is too limited, the scholastic periods are far too short, and the lectures, in consequence, too crowded together. Sufficient attention is not paid to clinical teaching—I mean hospital clinical teaching; for that adopted in the lecture-rooms of medical schools has little to recommend it, and is open to serious objections. Besides this, the examinations for graduation are too few and of too trivial a character to insure those by whom they are conducted against the commissions of the greatest blunders in regard to the state of preparation of the aspirant, and to enable them to turn out annually a set of young men properly qualified to take charge at once of the sick. It is true, that some professors assert, as I have myself heard them do, that young men, who have passed the ordeal of their examinations, have little more to learn in the branch they teach, and that the same may be said of the results obtained by all the other teachers in the school to which they belong; so that the graduates who issue in shoals from the portals of those institutions, may, one and all, be safely regarded as accomplished physicians and skilful practitioners. On this point, however, we may be permitted, without fear of being accused of undue skepticism, to demur, especially as some, who make the assertion, have been twenty or thirty years in learning what they know, and do not yet know much more than is absolutely necessary; and surely, if such has been the case with teachers, we cannot easily admit the possibility of young men who have gone through a course of instruction such as has been referred to,

can so rapidly have acquired the degree of knowledge necessary to entitle them to the favorable opinion thus expressed.

Especially is it impossible for any examiner to ascertain, during one sitting with the candidate, whether the latter has really qualified himself to the extent that is here pretended. One short examination of some ten to twenty minutes on each branch taught, and conducted most generally in private, is not and cannot be sufficient for that purpose. Many must and do pass through the ordeal, who, so far from being accomplished physicians and skilful practitioners, are perfectly unqualified in some of the branches and not much better off in respect to the rest. Of the truth of this there can scarcely be one among us who has not had evidences before his eyes; and surely, when we find some faculties examining between two and three hundred candidates in the short space of a month—sometimes amid the bustle of lectures and of private and public practice, and admitting them all, or nearly all, we cannot but presume, *à priori*, that such must often be the case. Homer himself was at times found napping. The same has been said of many conscientious and venerable confessors, and we must be pardoned for thinking that medical professors are not unfrequently subject to the same fate.

That some of the young doctors so hastily made, do not immediately venture on offering themselves to the public as candidates for professional occupation, but continue for some time longer, either at home or abroad, in prosecuting their studies, may be, and is doubtless true. But the number of those who constitute this better class is comparatively small. More usually the young graduate, fresh from the benches of the school, opens his office and announces his readiness to enter on the practical duties of his calling. It is true, that some of these ultimately become by dint of study and long experience good and safe practitioners. This result, however, is of slow growth, and I hazard nothing in stating that it cannot be obtained otherwise than at the expense of human life. The consequence of these defects in the system of medical education adopted in this country has always been felt among us—not in this State alone, but everywhere. It continues to be so felt to this very day. Perhaps I may go farther and say that it is more keenly felt now than ever before; for the establishment of cheap schools and of free schools in many localities—often in places where the duties of teachers are assumed by men imperfectly qualified for the task, and who would themselves not be the worse off for a proper course of instruction and plenty of reading; and where the appliances for effective teaching, and for clinical instruction particularly, cannot be obtained, has opened the door to many abuses and served to increase and perpetuate the evils to which allusion was made above. In former times, the expenses of travel, added to the high price of medical tuition and medical graduation, deterred many from resorting to distant schools, who otherwise would have selected medicine as their business, though better qualified, from want of early education and mental training, to do justice to some less intellectual or some mechanical pursuit. At the present day, they labor under no such difficulty; for they find near home schools where they can, in a short time and at little or no expense, obtain a regular

medical degree. Nay, not a few may take or have taken advantage of the facilities afforded by some schools located even in places where they could least be expected to be found, and which have two sessions and two periods of graduation in the year. Need I say that all these schools are instrumental in enticing into the ranks of the profession a number of individuals who do it no honor and ought to be otherwise employed; and contribute largely in increasing an evil resulting from an effect which our older and better organized medical establishments proved themselves perfectly adequate to accomplish—namely, spreading over the whole country swarms of half educated physicians?

Let it not be supposed from what precedes, that I am an uncompromising opponent of the establishment of cheap schools. Still less am I adverse to the existence of free schools. But, in order that either set of institutions should deserve the full approbation of the profession, it is necessary that some method should be adopted to insure the selection of proper teachers; that the requirements for admission to the lectures, and more especially to the doctorate, should be of a high order; that the course of medical instruction should be long and complete, and that the examinations should be public, frequent and stringent. When these measures are adopted, such institutions may be entitled to approbation. Until then, they must be viewed as more mischievous than schools conducted agreeably to the ordinary plan. In respect to double session schools, I have no hesitation in remarking that in a country where the doings of medical institutions are concealed from public view, they cannot be otherwise than perfectly objectionable. For though the faculties of such institutions may be occasionally composed of honorable men who will not abuse the privileges of their position, and sell their diplomas too cheaply to young men whose term of instruction has been shorter than is allowed by usage if not by law, yet those faculties have not always been, and may not always be so safely composed, and we all know that from these schools have issued graduates who, so far from having studied the usual time, had done so less than a year. Certainly, such things are intolerable. What has been done at one time may be repeated at some future day, and it becomes imperative on us all to express our disapprobation of the existence of schools where they *may* be done.

A reform in the medical education of this country cannot be too soon effected, and has become a desideratum with every lover of his profession.

As if the course of medical instruction were not, in all conscience, short enough, a plan has been adopted in some large and influential schools which makes it, in some respects, shorter still, and, according to my view of the case, prevents students from reaping to the full extent the advantages they are promised.

The plan heretofore pursued in all the schools of the country was to postpone the examinations of the candidates for graduation, till after the close of the lectures. By this means the student enjoyed, or might if he chose enjoy, the benefit of two courses on each of the branches, of full four months, or four months and a half, according to the institution he selected, without having his mind diverted, during that time, by ne-

cessarily dwelling on other considerations than those connected with the subject of the lectures and demonstrations he was attending. When these were over, he had more or less leisure to pass in review the various subjects which had been brought to his attention, and especially to perfect himself on those topics in relation to which he felt himself deficient, besides taking advantage of means of further instruction offered in the way of private lectures and examinations. At present, the examinations in the schools alluded to commence in the early part, and continue during the whole course of the last month of the term. They proceed simultaneously with the lectures, and are there, as in some other establishments, conducted in private and by each professor separately.

Young men are keen enough to discover from the manner in which they have answered questions put to them, and the tone and langaage of the examiners, whether or not they have been successful. Very few can have, nor, usually, have they, any doubts on the subject. Now, it stands to reason, that as soon as they have passed through the hands of a professor, they will generally at least, neglect the remaining lectures of that professor, or at any rate, will fail to pay particular attention to the concluding portion of his discourse. * * * When they have passed all the examinations they lose interest in the school exercises. The principal object they had in view was to secure the possession of a diploma. They now feel satisfied on that score, and have no disposition to continue their studies. They hence avoid, or lounge about the lecture-rooms and amuse themselves the best way they can till commencement-day, after which, having received, with proper formality and to the sonnd of music, their long-wished for testimonial, and having, besides, been very gravely told that they are proclaimed, before the large assemblage gathered together to witness the ceremony, "Physicians, not only in name, but in knowlege, Doctors in medicine, to whom the husband may intrust the safety of his beloved wife; the wife, the health of her cherished husband; the parent the lives of his dear children; and the community, the security of those illustrious servants who minister to the glory aud safety of the country."

Let us trust that the day is not far distant when the system of private examinations will also be abandoned, and the qualifications of the candidates will be tested, on the several branches taught, in presence of medical commissioners appointed by the governors of the schools or by the society of the States where these schools are located. By expedients such as that mentioned, schools may curry favor with students and enlarge the number of their matriculants, but they do not contribute to the creation of a class of physicians calculated to elevate the character and enhance the honor and respectability of the profession.

Doubtless we labor under more difficulties in this country than is experienced elsewhere, in relation to the attainment of the desirable object to which your attention is now called. They arise from the popular—often radical—nature of our institutions; from the objectionable character and the incompetency of the individuals in whose hands the government of those institutions is very generally placed, or by whom it is monopolized, and from the go-ahead, reckless, unreflective,

and presumptive disposition of a large portion of our population, and their ignorance in many matters they undertake to control. From these circumstances there results this fact, that many things are done which affect injuriously the character and interests of the medical profession, and as many are left undone, which that profession would require in order to assume the position to which it has just claims. Raise the cry of the "people;" talk loudly about our "noble republican institutions;" insist upon the vast superiority of these over all other institutions; abuse everything European; especially abuse England and her aristocracy; and enlarge on the liberty which every freeborn American citizen possesses of doing as he pleases, and you will be almost sure to obtain from our wise, disinterested and patriotic governing bodies the enactment, within the limits of their influence, of any law however truly objectionable to the well informed and clear-sighted, respecting the organization of our medical institutions, and the rejection, on the score of monopoly, tyranny, and what not, of any clause imposing restrictions on the rapid manufacture of doctors, and on the practice of medicine—in fact, on everything likely to protect and raise the character of the profession. We have, in our endeavors at improvement—in our efforts to promote the interests and secure the rights and liberties—civil, religious, and political—of the "people," succeeded, step by step, rather in placing the higher, or educated classes of the community on a level with the lower, than in elevating the latter to an equality with the former, until at last the natural order of thing has been reversed; power has been assumed by those least qualified to exercise it. In a word, we now find ourselves in the hands of a set from whom little of what is just, wise, useful, or ennobling—nothing indicative of that intelligence, knowledge, and experience which should ever constitute the essential attributes of those who aim at governing their fellow men, can be anticipated. Judging from the results, one would almost imagine that in the selection of their rulers and public servants, our liberty-loving and equality-seeking people frequently follow the system referred to by Figaro: "I was almost in a state of despair. My friends thought of me for an office; but unfortunately I was qualified to fulfil its duties. It was an accountant that was wanted; a dancing master obtained the situation."

But whatever may be the case as regards other matters, certain it is that in all that relates to medicine, such august bodies are not to be trusted. Nothing of a truly useful character can be expected at their hands; while those who control the medical institutions themselves are fettered by influential circumstances which render improvement next to an impossibility. And yet this profession can scarcely hope to attain the high position to which it is entitled, not only so long as the standard of education of its members is not raised; the period of probation of the candidates for the doctorate lengthened, and the plan of examinations improved; but also, so long as proper and efficient measures are not adopted to insure the selection of competent and experienced teachers and the location of schools only where they are needed and can be useful. As matters now stand, any set of medical men, even in out of the way places, where the requisite appliances for

imparting instruction are not accessible, may, with some little management and political influence, obtain a charter for a school and start at once on their professional career—no inquiry being made as to their competency, or to their possessing really the right to assume a title which they regard themselves as fit to confer upon others. They may even receive a donation of funds from the State for the purpose of erecting a college building, or for other objects. Depending for the support of their establishment on the number of pupils they can gather, and these, being but too often attracted to an institution by the facilities they there enjoy in hastening the period of their studies, and smoothing their path to the doctorate, those self constituted professors and their successors, are not always as particular as they ought to be as to the nature of the requirements that should be exacted of pupils, and in regard to the results of the examinations to which these are submitted, and, as a consequence, send forth their quota of imperfectly educated physicians.

In many of these institutions, as indeed, in others of older date and higher repute, the selection of the professors is intrusted to boards of governors or trustees, who are irresponsible in their acts. The plan, if those boards were always judiciously composed, could answer a useful purpose. It may be added, also, that on many occasions, they have made very good choices, and I could name faculties selected by such governing bodies which would do honor to any school. But, unfortunately, those bodies are not always composed as properly as might be desirable, considering the duties assigned to them. Hence the choices they make are only occasionally, and accidentally of the satisfactory kind mentioned. In general, they are made up of members of the bar, of clergymen, of merchants, and now and then they contain a sprinkling of physicians—often none at all. The consequences of this arrangement, whenever the members of a body so composed are called upon to make choice of a medical professor, may be easily foreseen. Conscious of their inability to judge, themselves, of the merits of the several candidates, and to select the most competent person to fill a vacancy that may have occurred in the faculty, they are compelled to rely on the opinion of third parties in—often out—of the profession, who, feeling no particular interest in the success of the school, are guided in their advice by their personal regard for a certain applicant, and are, of course, seldom impartial.

Not rarely, the electing body is governed in its choice by family influences and personal considerations, and unheeding the admonitions of better judges, but too often give its preference to inferior men who cannot add to the reputation of the school, but acquiring reputation by being connected with it, tend not unfrequently to lower its character and lessen its influence. * * * The experience of this country teaches us but too well, that in all selections made by a body so composed, politics is a lever more powerfully effective than the appreciation of the merits and fitness of the individual appointed to fill an office; and so far we have had no good reason to presume that a medical appointment left to such hands, will be made agreeably to other principles. In some of the institutions of the country, it may be added, the faculties have the power of nomination.

In no country is the physician surrounded, elbowed, encompassed and interfered with, by one-tenth—nay, one hundredth—part of the quackery and quacks he encounters in our own; and no less in our State than in other parts of the Republic. We have quacks of all kinds, of all colors, of both sexes, of all nations, and quackery presents itself in every form imaginable. Pills, liquids, plasters, oils, embrocations, syrups, elixirs, tinctures of all kinds, even of gridirons—electric oils, electric sugars, balsams, panaceas, float, as it were, around us. We have infallible medicines to be used internally by the stomach; others that are administered by inhalation; others, again, that are applied externally. The number of the inventors, venders, distributors and prescribers of these articles is legion. I shall not occupy your time with a complete enumeration of the different varieties, species, and genera of the quacks by whom our land is polluted—though the statistics of this particular class of natural history would be curious—some pretending that they practice in accordance to what they are pleased to call doctrines of their own; and others, discarding or ignoring all doctrines or theories, and appealing to experience obtained by empirical means—homœopathists, hydropathists, eclectics, steamers, Thompsonians, mesmerisers, electricians, chronothermalists, etc., etc. They start up before us in every direction; reach us from almost every shore of the known world, and, as if the material of which they are formed was not easily enough found in the shape of unemployed and lazy shoemakers, bookbinders, blacksmiths, butchers, ignorant, crack-brained and noisy preachers, and the offices of unprincipled or starving doctors, a foreign sovereign has been kind enough to send us, in the guise of a public functionary—brainless, so far as most matters are concerned, but, as it would seem, expert in the art of curing consumption. These quacks penetrate everywhere, openly or clandestinely. They even find their way into the families, and almost under the very noses of regular physicians.

I should certainly be very unwilling to be understood as stating, even by inference, that quack doctors and secret nostrums are nowhere to be found but in this country. The tribe of the former has existed everywhere and at all times, and are to be found at the present period in every section of the civilized world; while the latter abound wherever the others are encountered. Indeed the love of being gulled would seem to constitute an original attribute of our nature. It has ever betrayed, and to this day betrays itself even in classes of individuals whose intellectual endowments, powers of reasoning, and literary and scientific acquirements, as well as experience of the world, might well have been thought capable of shielding them from its baneful effects.

In Europe none are permitted to practice without a certificate or diploma from some chartered medical school; and while an individual may obtain a patent for a medicine, the composition of that medicine must first be declared to competent judges appointed for that purpose, and whose duty it is to certify as to the safety of its employment and its fitness in the cases for which it is proposed. In England a greater amount of liberty is allowed in both respects; but even there, the safety of the public is cared for to a certain extent, and any overt act, on the part of an unlicensed quack, or in the administration of a secret medi-

cine—especially when the case ends fatally—is usually visited by the application of severe and stringent laws. But neither in England, nor on the continent of Europe, are the members of the medical profession elbowed and circumvented and openly bearded, as it were, by such low-bred, ignorant, and unprincipled quacks, as those by whom we are here infested. Nowhere is the market so overstocked with secret and other quack nostrums. The quack doctors in England are, for the most part, licensed graduates, who have taken to their nefarious practices after obtaining a diploma in some regular medical school. They are, of course, either fools or rogues; but still they are not uneducated men, and there is less disgrace in being placed on an equal footing with them by the public, than we are made to experience in this land of liberty. Here a physician—even of the highest eminence—is regarded in the same light, in a professional and social point of view, not only as an erring graduate, but as the most arrant empiric and ignorant booby and rogue that may be pleased to assume the office and title of doctor.

In Europe, the law for the most part, recognizes regular and legitimate medicine, and none other, and protects the exercise of it. If, in some places, the practice of certain species of quackery, as homœopathy, hydropathy, and the like, is sanctioned, still, it, in great measure, is not allowed to pass out of the hands of regularly educated physicians. From these circumstances, the cultivators of our science—the practitioners of medicine in its legitimate form—have, notwithstanding some drawbacks, a chance of upholding the honor and dignity of their profession, which, by the high standard of education required of them before they can enter its folds, they are so well prepared to adorn. Here, on the contrary, we enjoy no advantages of the kind; for, independently of the fact, already adverted to, that owing to the shortness of the course of instruction in our colleges, and to other facilities offered for obtaining diplomas, our ranks are apt to be filled with men of an inferior stamp and little calculated to do honor to the profession; the latter receives neither protection nor encouragement from the law or the public. Well has it been said that medicine furnishes a proof that by the law, which has, indeed, done all that statutes can do to abolish it effectively, much which, in the organization of society, has been held in a high degree expedient, if not necessary, may be sacrificed to a theory. "Equality," Dr. Clark remarks, "is the procrustean bed to which everything must be shaped," and our profession must submit to the ordeal. Our wise legislators cannot perceive why a man who has not gone through a definite course of study, and passed one or more examinations, should not be as free to practise medicine as he would be to pursue any other avocation without being regularly educated to it. They themselves exercise the trade of politics—they assume the duties of statesmen and make laws without prior training, and, as may readily be presumed, without much acquaintance with those important matters. They might, if they chose—and it is a pity they do not oftener thus choose to do—make shoes, or turn carpenters, or saddlers, or bookbinders, instead of governing the State; and if allowed to adopt, though untaught, either of these modes of earning their bread or accumulating a fortune, why, they ask, may not they or any one else have a like privi-

lege to compound and sell secret medicines, to drug people who wish to be drugged, and—assuming the title of doctor—perform the same duties as regularly bred physicians?

Little does the medical profession merit the treatment here referred to; for it has everywhere greater claims upon the gratitude of the public than the latter seems to be aware of, or at any rate, than has ever been repaid. Medicine is, and cannot be otherwise than, a progressive science. For thousands of years the members of that profession have toiled in the cause of suffering humanity with an ardor and zeal which ignorant, thick-headed, and whisky-soaked legislators, and the illiterate, unwashed, rough-handed portion of the community may be pardoned for not knowing or appreciating, but which should not be overlooked or forgotten by men of a different calibre of intellect, of high social position, and enjoying the advantages of a refined education. Say what the vulgar may, physicians have, in the progress of time, succeeded in erecting a monument which, though not perfect in all its details, rests upon foundations of a lasting character, and the superstructure of which may compare advantageously with those due to the skill and exertions of the cultivators of other departments of human knowledge. Their path from the earliest dawn of science to the present day, has been attended by increasing benefits to mankind.

May we not ask, with one addressing a society kindred to our own, "Is it not true, then, that medicine is the first of the progressive arts; and not first only, but incomparably above and beyond all others in the priceless benefits it has bestowed on man? Yet, who has risen to give public thanks for its Herculean labors? Who has proposed to commemorate the vast achievement of prolonging the years of the life of man more than one-fourth their former average, throughout civilized Europe and America, in the short period of half a century? Well, is it not better thus? for what celebration can adequately commemorate these triumphs of medicine? What monument can typify their greatness? Yet we have a right to demand a fair estimate of the value of our profession to society, and an honest acknowledgment of what it has done for the well-being of man."

In the language of a writer already several times quoted, I may say in conclusion, that "if the public offer us no rewards, no honors, no encouragement, they give us no occasion to complain of their demands. The profession in this country presents the novel spectacle of a body of men conscientiously forcing themselves to acquisitions of knowledge and skill, not only not demanded, but actually discouraged by those for whose benefit they labor. Medicine is the only profession that is striving systematically to resist the down-levelling tendencies of legislation; the only profession which every year demands of its votaries higher and still higher attainments." Well may we say, we are justly proud of our calling, and prepared to respond cheerfully and liberally to its claims. "Medicine demands of us that we be men of integrity and honor; men of character, that she may be respected in us; men of charity, that she may be loved; men of learning, that she may exercise her rightful authority; men of research and labor, that she may claim from each something to be added to the general stock of knowledge." * * *

Nothing, it has always appeared to me, is more devoid of force—I had almost said more senseless—than the opposition that is so often made to what is sneeringly denominated book-learning, and the reason assigned to justify that opposition—*i.e.*, that a physician who spends much time in reading, who is learned in books, and especially who cultivates general literature, cannot, on that account, become an experienced and successful practitioner. Doubtless, as said before, an exclusive devotion to information derived through such means, and a neglect of that furnished by an assiduous attendance at the bedside of the sick, would lead a physician to results of a doubtful character. But because such a mode of proceeding would never enable him to acquire the clinical experience requisite to render him useful in a practical point of view, it does not follow, as is but too often asserted by some physicians, and is still more generally echoed by the public, that a reading physician cannot become skilful and successful in the practice of his art. So far from this, when restricted within reasonable bounds, and combined, as it should and may easily be, with clinical knowledge, that much abused book-learning generally proves of the most decided advantage to the practical physician, and places him in a much higher position in respect to his usefulness as an attendant at the bedside. A well read physician, has more resources at his command when placed at the bedside of the sick. Knowing what has been observed and done by others, as regards the treatment of diseases which fall under his observation, as well in their pure as in their complicated states ; aware also of the results of the researches made in various places, and under diversified circumstances, by individuals competent to the task, relative to the nature and seat of those diseases—the symptoms by which they can be detected, the signs by which they may be diagnosed, the textural and organic changes they occasion, or which reveal their true nature—he is better prepared to combat them with success, whatever be the modifications under which they present themselves, and, instead of groping as it were in the dark, resort to the means found useful in the management of cases similar to those before him, but which he may not have already seen in their present aspect. He is more certain to arrive at a correct diagnosis and prognosis even in cases, or modifications of cases, of unusual occurrence. He is less apt to find himself at a loss in moments of emergency, and more adequate to take an enlarged and correct view of the causation and nature of the diseases under his charge, and to deduce from his observations principles calculated to guide him successfully in the selection of his remedial means. To this let me add, that a physician of the class under consideration, is less in danger of merging into the mere empiric, or of lapsing into quackery than the indiscriminate condemner of book-learning. The latter contribute little or nothing to the progress of even practical medicine. They live, they die, and are forgotten. At the time of their disappearance from the stage of life, the amount of practical resources at their command is scarcely greater than it was when they commenced, except as is afforded by a certain degree of familiarity with the salient phenomena and the progression of diseases commonly encountered by them during their rounds, and with the effect, in the treatment of

these, of common remedies. They leave nothing likely to benefit others. They are besides seldom fastidious in regard to professional ethics, and are not in general looked up to as beacons for the guidance of their brethren in their endeavors to elevate the medical profession in the estimation of the public at large.

I have said enough to indicate my belief that a physician cannot hope, and is not destined to attain, the object in view, still less to acquire an eminent position among his brethren, and contribute to the advancement of any one of the several branches of the science he cultivates, unless he be endowed with the love or enthusiasm of science, and enters into the pursuit of the knowledge necessary to the proper performance of his professional duties with more than a common alacrity. Medical observation is not simply the result of a passive operation of the organs of sense. It requires, in order to lead to useful issues, a force of mind, a quickness of perception, a degree of penetration, and hence efforts of the intellectual functions—a constant and rapid appeal to the faculties of causation and comparison, which cannot be exercised to the required point unless under the stimulus of enthusiastic excitement. Had he not been under the control of the agitating and impulsive feeling in question, Hippocrates would not have been remembered in after times. Nor would Galen, Celsus, Avicenna ; nor Boerhaave, Harvey, Stoll, Selle, Cullen, J. Hunter, Broussais, Louis (I mean he of Surgery), nor Bichât, Rush, Tommasini, and a thousand others I could mention. None of these, I repeat, could have attained the eminence they occupy, and stamped their names in imperishable letters on the pages of our professional history, had they not felt the vivifying effects of the sacred fire in question.

ART. IX.—*Obstetrics.*

1. *Statistics of Operative Midwifery:* By Dr. Ricker, Monatsbr. fur Geburts., Bd. vi, pp. 81-101; and Med. Times and Gazette, Abstract Medical Science.

THIS interesting contribution is derived from midwifery practice in the Grand Duchy of Nassau. This contains 429,341 inhabitants, and there are 100 civil practitioners, besides 20 others who practise while holding military or other appointments. These practitioners are required to make half-yearly returns, stating the characters of prevalent disease, the most remarkable of the surgical cases, and all the midwifery cases. The author has had access to the midwifery returns, and furnishes here an account of the results of his examination, as far as operative midwifery is concerned. Between 1821 and 1842 inclusive, *i. e.* 22 years, 304,150 births were recorded.

1. *Forceps.*—These were employed in 4223 cases, or about 1 in 72 cases. As, however, the earlier returns were somewhat incomplete, Dr.

Ricker believes that 1 in 70 would be nearer the mark. The results were that 93 of the mothers died either during or soon after the operation, and that 684 children were born dead; being 1 death in 45 of the mothers, and 1 in 6 of the children. The indications for the employment of forceps are noted in 708 of the cases only, viz.:

Disproportion of size in the head and pelvis	287
Absence or feebleness of pains	269
Weakness or exhaustion of patient	33
Prolapsus of funis	29
Spasmodic or violent pains	22
Face presentation	20
Convulsions	12
Descent of parts with head	8
Placenta prævia	3
Faulty presentation of head	7
Rigidity	4
Tumefaction of pudenda	4
Erysipelas pudendi	7
Putrescency	1

2. *Turning.*—There were ten cases of cephalic version, and 2473 of turning by the foot, or 1 in 123. The results were 176 deaths on the part of the mother, or 1 in 14, while 1431 children were born dead, or died soon after, or nearly 1 in 2. The indication for turning is recorded in 530 cases, viz.:

Transverse presentation	388
Placenta prævia	82
Prolapse of funis	28
Narrow pelvis	18
Hæmorrhage	5
Other dangerous affections	4
Face presentation	2
Faulty presentation of head	2
Convulsions	1

3. *Perforation* was resorted to in 143 instances, or 1 in 2126. There were recorded 88 recoveries and 35 deaths, while in 20 cases no results are given.

4. *Dismemberment* was effected in 22 cases, 16 mothers recovering and 6 dying.

5. *Cæsarian section.*—Between 1821 and 1843, with 311,409 births, this operation was performed 12 times, 2 mothers and 7 children being saved. This gives about one Cæsarian operation in 26,000 births. The operation was performed 33 times after the death of the mother, but none of the children were saved.

The author compares these results with the statistical accounts of the authors; but these being well known we have not quoted them.

2. *Extra Uterine Pregnancy.*—(Transactions South Carolina Med. Association, 1857.)—A letter from Dr. Andrew Hassell was read by

Dr. DeSaussure, relative to a very interesting specimen of *tubal pregnancy*, which accompanied it, a present to the Association.

The following extracts from the letter are of interest:

The specimen of extra uterine pregnancy was removed from a negro woman in September, 1856, six hours after death. She was 35 years of age, had been twice married, had enjoyed excellent health to within two years, since which time her catamenial discharges have been irregular as to quantity, accompanied by so much dysmenorrhœa as to compel her to keep her bed for a few days at each menstrual period. Her complaints had become more urgent from the commencement of 1856. About a fortnight before her death, and after a confinement of five or six days to the house, she was visited by Dr. Post, who found her suffering from much pain, seated in a tumor in the right iliac region, corresponding to the position of the ovary. The tumor could be elevated or depressed by manipulation. No indication of the nature of the tumor was furnished by an examination per vaginam or per anum. During the treatment she had exacerbating pains, with intervals of comparative ease; at which time she could take exercise and appeared cheerful. The night previous to her death she suffered intense pain, and was found in the morning with all the symptoms of a ruptured uterus, viz: cold clammy sweats, thready pulse, rejection of the blandest fluids, etc. Upon careful auscultation at various times no indication of a placental circulation could be perceived. An autopsy was made six hours after death. The abdomen was found distended, with clotted blood. The fœtus was found detached, when the uterus, with its appendages had been carefully removed. Dr. Hassell supposed that the separation had taken place some time prior to death.

Dr. Chisolm having examined the specimen, by request of the President, reported the following results: The position of the ovum was in the fimbriated extremity of the right fallopian tube, which had been converted into a cyst of near four inches diameter. To the upper portion of this cavity a well formed placenta belonging to a fœtus of at least 3 months, was firmly attached: there was no umbilical cord hanging from the mass. The walls of the cyst, exclusive of placenta were ¼ of an inch thick. A very large rent, nearly as long as the diameter of the sack, gave free exit to the contents, and was the source of the fatal hemorrhage. The detached fœtus was 4½ inches long and well-formed. The cuticle upon its neck appeared for a limited space to have separated from the true skin, which led him to suppose that it was the results of decomposition, and that therefore a considerable interval had elapsed between the death of the child and that of the mother. The fallopian tube for the distance of nearly two inches from the uterus was pervious, and a bristle passed readily into the uterine cavity. The ovaries were apparently healthy. Several small cysts existed over the peritoneal surface of the uterus, contents grumous. One in the immediate vicinity of the left ovary contained 3 or 4 drachms of curdy matter, slightly yellow in color, which was supposed to be pus coagulated by the alcohol, in which the specimen had been kept six months prior to presentation to the Association. The uterus was enlarged to three times its normal size.

On motion of Dr. Geddings the thanks of the Association were returned to Dr. Hassell for the rare and valuable specimen, which would be deposited in the museum of the Medical College of South Carolina, where two similar specimens are to be found, one deposited in 1850, the other in 1856.

Art. X.—*Progress of Anatomy and Physiology:* By Dr. Thomas Hayden. (*From the Dublin Hospital Gazette.*)

Living beings are offered to our notice under two aspects—as presenting forms and performing functions. The department of science which treats of them in the former relation is called Morphology, that in the latter Physiology. These two grand divisions of biology are themselves resolvable—Morphology into histology, which treats of the elementary structure of tissues ; anatomy, of their perfect structure and mutual relation ; and palæontology, which professes to infer form and function from the fossil remains contained in the earth's crust. Physiology, likewise, into physico-chemical, of which the province is to investigate the laws governing the physical actions of organized bodies ; and psychology, those relating to mental operations. Living beings may be either dormant or active. If dormant, they are capable of being roused into action by certain agencies, viz : heat, light, moisture, and electricity, which are hence called vital stimuli ; and in this state they are distinguishable from *not*-living beings by their tendency to pass through a cyclical succession of changes of form and composition, whilst the latter are either stationary or undergoing disintegration. Again, a living being is remarkable in that it never presents a regular geometrical figure or plane surface, like a crystal ; and further, it invariably exhibits a definite structure. No living being consists chemically of less than three elements, and probably four, viz : carbon, hydrogen, oxygen, and nitrogen, in the proportion in which they form protein ; whilst inorganic bodies present the most varied chemical constitution, from a simple element to the most complex atomic arrangement. The allied forms of animal and vegetable organization are distinguishable rather by functional than by structural peculiarities ; thus, the lowest plant as well as the highest, possesses the remarkable power of *feeding* upon the simple elements, oxygen, hydrogen, nitrogen, and carbon, detaching them from their binary combination in air and water, and uniting them into the ternary and quaternary compounds of chlorophyl, albumen, and starch ; whilst animals derive their nutritive supply exclusively from organic substances, and thus are dependent, directly or indirectly, upon the vegetable kingdom. Plants appropriate their aliment by imbibition through the external surface of their bodies ; animals either possess or extemporise a digestive cavity, in which the primary stages of alimenta-

tion are performed. Plants are either wholly incapable of spontaneous motion, or, in the few examples in which they possess this faculty in their embryo condition, it is accomplished by the action of cilia, and has reference entirely to their dispersion; animals, on the contrary, in their simplest known forms, effect change of place by motions indisputably voluntary. The boundary line between the animal and vegetable kingdoms is not, however, strictly defined; rather it is transgressed at certain points, in such a way that the adjacent territories are, as it were, dove-tailed into one another. The Acephalocystis endogena, or pill-box hydatid, has neither a permanent nor temporary stomach, and obtains its food by superficial imbibition, like a plant. Amongst vegetables, the Sarraceniæ possess peculiar organs, called pitchers, into which insects are attracted by the presence of a sweet gummy secretion, and their exit barred by long hairs growing from the inner surface; within these receptacles their bodies are dissolved, and appropriated by the vegetable tissues; here we have something exceedingly like a digestive cavity, and digestion of solid and organic aliment. Thus, then, it may be said, so closely allied are the two great organic kingdoms of nature, that, as represented by their lowest forms, they might be readily confounded with each other, and so intimately related, that even when best defined, they still touch by their angles, but from these points of mutual contact they diverge almost indefinitely. All animals agree in the possession of three essential properties: *absorption*, *metamorphosis*, and *irritability:* the first physical, the second chemical, and the third vital; and their chief morphological differences depend upon the multiplication of organs in subjection to these properties. This law, of the physiological division of labor, is universal throughout the animal kingdom, but of the organs destined to execute it, there is a difference in *kind*, for the several classes of a sub-kingdom, and in *degree*, for the orders of a class; and both increase with the distance between the extremes in each class and order. The morphological differences just adverted to, as having direct reference as to function, constitute typical variation, and form the basis for the natural division of the animal creation into the five grand types—Protozöa, Cœlenterata, Molusca, Annulosa, and Vertebrata.—*Huxley*.

Schleiden and Schwan taught that all organized structures, both animal and vegetable, originate from cells, as their primary or embryonic form; that these cells are anatomically and physiologically independent; that they are the causes or *centres* of organization; and that all organs and organisms result from their coalescence; that a typical cell consists of cell wall, cell contents, and cytoblast or nucleus; that new cells were formed by the development of new cytoblasts in the surrounding cytoblastema; and that the cell wall was secreted from the surface of the cytoblast, and subsequently separated from it by the accumulated liquid cell contents. In this theory of cell generation a very important element, as far at least as regards vegetable anatomy, was entirely overlooked, the primordial utricle of Von Mohl; this is a nitrogenous membrane, lying within, and in close contact with the cellulose cavity, or so called cell wall of Schleiden and Schwan. These authors assumed that the cytoblast was the essential or formative element of the cell;

but the observations of Mr. Henfry have shown that no cytoblast exists in the germinating parts of young ferns; and many similar examples amongst animals and vegetables may be adduced. Modern research has satisfactorily proved that the primordial utricle is, in cell growth, what Schleiden and Schwan believed the cytoblast to be—the essentially formative organ of the cell; for in its substance nuclei have been observed in process of development, and new cells to result from its division; and further, the observations of Wenham on anachais alsinastrum, those of Mr. Davy on the briony plant, and Mr. Rainey on the development of the tentacles of cysticercus have clearly demonstrated that at no period of the development of these structures are cell formation and cell growth, as commonly understood, to be observed. The primary basis of all organized structures consists of two elements—a clear homogeneous matrix, called periplast by Huxley, and a number of minute bodies dispersed through this, the endoplasts of the same writer. The latter, in their simplest form, are solid spherules, composed of a structureless material named protoplasm, destitute of a limitary membrane, and generally containing in their centre an aggregation of granules constituting a *nucleus*. The simple structure now described, represents the earliest stage of organization with which we are acquainted, and through it all organized tissues, no matter how highly developed subsequently, must pass in their upward or *histogenic*, and in all probability also, in their downward or *histolytic* course. Beyond this primary stage, however, a number of vegetable structures never proceed; such are the protophyta or confervoid algæ. If a higher grade is to be attained, the endoplastic bodies are converted into cells, by a process of differentiation of the originally simple spherule into cell wall, primordial utricle, cell contents, and nucleus; the agency by which this is accomplished is involved in the mystery of life, and is indifferently named vital force, metabolic force, or *vis essentialis*.

With the formation of cells, what might be called the second stage of organization is attained, and is represented in a persistent form by the cellular tissues of animals and vegetables. All further progress towards the higher grades of development is effected by the modification of cells; and the study of this, in its various ramifications, constitutes the special department of histology.

Cells, then, are not the *centres*, nor even the *instruments* of organization; they only constitute one stage of the process, and appear to possess no special influence beyond the limits of that stage. Life is, in all probability, *molecular* not *cellular*, and cells are the exponents of vital phenomena only in the proportion of their constituent granules.

The process of growth involves two distinct operations—*accretion* and *differentiation*. In that stage of development which I have ventured to designate the first, and of which the protophyta amongst plants, and the protozoa amongst animals, afford striking examples, growth appears to consist in a simple accretion or coalescence of particles, without further differentiation of parts than a slight difference of consistence between the periplast and the endoplasts; but in all stages above this, there is both a morphological and a chemical differentiation, the former

consisting in vacuolation and fibrillation, the latter in conversion and deposit.

One of the humblest forms of vegetable organism is the *palmoglæa macrococca*, found to consist of a simple mass of nitrogenous substance, named protoplasm, containing a nucleus and some chlorophyl granules, and embedded in a viscid homogeneous matrix. Multiplication is effected by spontaneous division of the minute body into two portions, which are next separated by the ingrowth of the surrounding matrix, each segment becoming a perfect representative of the original. These changes may be seen actually taking place by microscopical examination. Parallel examples from the animal kingdom are furnished by the *amœba* and *actinophrys*, which are simple accretions of a substance called sarcode, by Dujardin, without investing membrane or internal structure. In the interior may be observed one or two vacant spaces, the walls of which are endowed with a contractile property, and are seen in the living animal to contract and dilate alternately, at a fixed rate, which I have determined in the vorticelli, a closely allied organism, to be five times in a minute. The amœba assumes a variety of forms, and is hence sometimes named proteus; it advances by projecting a portion of its body in the form of an elongated process, which it fixes to the neighboring surface, and by this means drags the remainder along at a sluggish pace; if in its course it happen to encounter a suitable particle of aliment, it forces this through the soft tissues of its body into the interior, where its nutritive elements are absorbed, and whence the refuse matter is expelled by a similar process. The actinophrys differs from the amœba only in preserving a definite form, and possessing a number of long prehensile organs, called pseudopodia, by means of which it grasps and engulphs its prey. Thus, the only distinctive character between these lowly creatures and the humble Palmoglæa, consists in the possession by them of a contractile vesicle, and of the faculty of progression; they both fall short of the degree of development attained by an ordinary cell, form the starting points respectively of the animal and vegetable creation, and are, therefore, appropriately named—the one, *protozöa*, or primitive animals; the other, *protophyta*, or primitive plants.

As an evidence of the importance of the study of typical organization as tending to facilitate the labors of the naturalist, and of the great progress now being made in the elucidation of this subject, may be mentioned the relations recently proved to subsist between the tænioid and cystoid organisms. Up to a very recent period these two families of entozoä were regarded as perfectly distinct; but by the labors of Von Siebold and Van Beneden, their identity has been placed beyond the possibility of cavil. The distinguished professor of zoölogy in the University of Louvain, has divided the development of Tænia into four stages: those of the embryo, scolex, strobila, and proglottis. The embryo is a vesicle with hooklets attached to one portion of its surface. The scolex in addition, develops a head, with its appendages of hooklets and suckers. The strobila is the perfect tapeworm; and the proglottis one of its somites or segments detached and distended with young. The detachment of proglottides takes place from the posterior

extremity of the body, whilst at the same time other segments are formed or inserted between the head and neck of the animal; there is reason to believe, however, that the scolex is the formative part, and herein lies an explanation of the circumstance known to all practical physicians, that without the expulsion of the head of the tapeworm, a cure from that parasite cannot be affirmed. The identity of the cystic and cystoid organisms has been proved experimentally by Leuckhart, Van Beneden, and Von Siebold. Puppies have been fed with cysticercus pisiformis, and in the course of a few weeks their intestines were found nearly full of Tænia serrata; on the other hand, a rabbit was fed with the ripe proglottides of Tænia serrata, and a week afterwards, its liver was studded with minute cysts containing ascaroid formations. In another rabbit similarly treated, these were found in the scolex stage, in the peritoneal cavity. The liver of white mice, fed with the proglottides of Tænia crassicollis, was found infested with cysticercus fasciolaris, and the muscles of pigs fed on Tænia solium, presented the cysticercus cellulosus, constituting the condition commonly known as that of measley pork. A lamb fed on Tænia serrata, manifests within a fortnight symptoms of the disease called staggers, and a week or two subsequently its brain is the seat of cœnurus cerebralis.

It is well known that the intestinal canal of carnivorous vertebrata, such as man, the dog, the cat, the lion, is the sole habitat of Tænia; whilst cystoid entozoä may infest the muscles, the eye, the liver, the brain, and other parts of vertebrate animals, both carnivorous and herbivorous; and further, that certain species hitherto regarded as distinct in their origin and organization, are peculiar to certain parts of some of these animals, as the cysticercus cellulosæ to the intermuscular cellular tissue of man and the pig, and cœnurus cerebralis, to the brains of young sheep. With the facts just enumerated before us, we can have no difficulty in comprehending the cause which determines the development of the embryo cysticerque into the Tænia, in the body of the dog; and that of the proglottis of Tænia into cysticercus or cœnurus in the rabbit or lamb: it lies in the law of modification of species dependent upon locality.

The three great branches of biology—development, structure, and function—were probably studied, at least primarily, in inverse order: function excited the wonder of man; from this arose curiosity to ascertain structure; and then, again, to determine the process by which this structure came to be.

The different parts of living beings are mutually related. This correlation is of two kinds—*physiological* and *morphological*. The physiological correlation implies a typical conformation of organs, leaving a broad margin on either side, within the limits of which it is possible to deviate without deranging their harmonious action, or materially altering the result. Thus, the multicuspid teeth and quadrilocular stomach of a ruminant, are physiologically correlated, the common end being alimentation. Yet a deviation from the typical number or conformation of the teeth, or even their total absence, will not seriously modify the nutritive process. Again, although the laniary teeth of the tiger would enable us to predicate of that animal the possession of a simple stom-

ach, were we to reason from the same premises to a similar conclusion in the case of the dog, whose teeth are no less efficient instruments of laceration, we should fall into a serious error, for the digestive tube of this animal, as will be observed, is by no means a simple organ.

The laws which govern *morphological* correlation are, on the contrary, simply empirical. We know from experience that certain organs and a definite conformation of them co-exist in the same animal ; but as to *why* they do so, morphology taken exclusively teaches nothing ; physiology, however, supplies this deficiency, and explains the *why* by reasoning out the common end. Thus, then, these two branches of natural science interpret each other, and it is impossible to study either efficiently, and in the full measure of its attractiveness, without the aid of the other.

ART. XI.—*Case of Hypertrophy of the left Mamma.* By J. A. LAWRIE, M. D., Professor of Surgery, University, Glasgow. Read before the Glasgow Medico-Chirurgical Society.

MISS M. W., aged 13; healthy girl. In October, 1855, the left mamma was observed to be considerably enlarged, having the appearance of that of a young adult, while the right had the undeveloped dimensions of a girl of 13. In every respect, except size, its aspect and feel were those of health. I had no difficulty in at once diagnosing simple hypertrophy of the mamma. I gave a very doubtful prognosis as to the result of treatment, expressing, at the same time, a hope that its progress might not be very rapid. In December she had measles, without any obvious effect on the mamma. Soon afterwards she went to the country, and on returning in March, 1856, I was distressed to find that the enlargement was making very rapid progress. As she had not menstruated—steel, warm hip-baths, and other supposed emenagogues were prescribed, but without avail. Iodine had been previously tried to no purpose. The mamma was now as large as a full-sized fœtal head, with large tortuous veins, coursing over it, but in no other respect differing from a large virgin gland. I still adhered to my previous opinion that the disease was simple enlargement, dangerous only from its size and rapid growth, and from not being at all amenable to treatment. A consultation being proposed on the 24th April, 1856, I called in one of the most experienced surgeons in Glasgow, and suspicions arising as to the disease being soft cancer and not hypertrophy, immediate amputation was recommended. This opinion being communicated to the girl's relations, we were urged not to lose time, and, accordingly, I removed the entire gland next day. Much to my relief, my original diagnosis proved correct; examination showed the enlargement to be hypertrophy in its purest and simplest form. The wound healed readily. In June, 1856, two months after the operation, she menstruated, and I saw the young lady yesterday in perfect health.

This case was to me one of considerable interest for the following reasons:

1. *Its rarity.*—It is the only example of pure hypertrophy in the girl I have met with. Large pendulous breasts in elderly adults I have frequently seen, but only this one of simple hypertrophy at the age of approaching puberty. Some here present may be aware, that in the first volume of the Glasgow Medical Journal, I published a fatal case of hypertrophy of both mammæ in a woman aged 30; but that case differed in many respects from the present. At the time I considered it unique, at least in as far as the literature of the disease goes. Velpeau says, simple hypertrophy is less common in France than in England, Germany, America, Egypt, and India, and in all his extensive experience had only met with six or eight cases, all of which do not appear to have been genuine.

2. The diagnosis, according to Velpeau, is easy, and if seen from the early stage, and watched as I had the advantage of doing with Miss W., it ought not to be difficult. Seen, however, for the first time, at a more advanced period, this case proves that it does present some points of close resemblance to soft cancer. Velpeau says, "in short, one symptom will obviate any mistake, and it is that in hypertrophy, except in size, there is no change in the affected organ." With all deference, this is hardly correct. The color of the hypertrophied breast is at times somewhat livid, and it is almost always traversed by large distended veins, which is also often the case in the fungoid disease, while it is absent in mammæ naturally large, but not diseased. There is, however, no alteration in the nipple, and I believe it generally wants the tense elastic semi-fluctuating feel, with partial discoloration of the surface, so commonly met with in fungoid disease.

3. *The age.*—This girl was unusually young. Velpeau says he has never met with it before 15, or after 40 years of age. Miss W. was 13 years and six months when I first saw her.

4. Its rapid growth was, latterly, alarming. The operation was performed within six months from the time that I first saw it.

5. *Treatment.*—Our best and most experienced surgeons agree in saying that treatment, either local or general, is of no avail. Velpeau seems to have found iodine and pressure of use in one case, and in one only did he amputate. I see no reason to regret the course followed with Miss W. The rapid progress of the disease, in spite of treatment, the complete success of the operation, the supervention of menstruation, and the present perfect health, make it almost fortunate that a doubt as to its true nature hastened the operation.

The ultimate result of other cases of hypertrophy which have not been amputated, or in which amputation has been long delayed, would not induce me to modify this opinion. In some, as in that of Mary Bradford, related by the first Mr. Hey of Leeds, the gland attains an enormous size; and amputation, when ultimately demanded, may come too late to arrest deformity, and when performed, is proportionally much more dangerous.—*Glasgow Med. Jour., April*, 1857.

REVIEWS.

Rev. I.—*A Manual of Examinations upon Anatomy, Physiology, Surgery, Practice of Medicine, Obstetrics, Materia Medica, Chemistry, Pharmacy, and Therapeutics. To which is added a Medical Formulary. Designed for Students of Medicine.* By J. L. Ludlow, A. M., M. D., Fellow of the College of Physicians; Member of the American Medical Association; and one of the Consulting Physicians to the Philadelphia Hospital, etc., etc.; a new edition thoroughly revised and much enlarged; with 370 illustrations. Pp. 816, large 12 mo. Philadelphia: Blanchard & Lea, 1857.

In his preface Dr. Ludlow says that this book "claims to give at a glance the principle* [principal] points necessary to guide the student in the prosecution of his studies, and to revive his recollection of subjects treated upon in more voluminous works. He has not been unmindful of the advantages of illustrations, which have been freely distributed throughout the work."

As time will not permit the reading of the entire book, it may be most profitable to examine portions of it chiefly in relation to the viscera and the structures which are most concerned in pathological anatomy, which, with physiology, are at once compass, chart, and polar star to the young pathologist who embarks upon the somewhat dubious voyage of medical practice.

In the book under consideration, correctness not originality, is expected. The whole realm of medical science being before the writer, he chooses and uses the best; he exercises the talent of rejection as well as that of selection; he neither dwells upon truisms nor dubious speculations; his facts and principles are grouped so that the greater shall include or suggest the lesser, thereby showing the skeptical doctor who declared the whole system of medicine could be written on one page, that 816 pages can be filled without exhausting the science.

In the building, or rather in the ornamenting of this book, the author appears to have luxuriated in the gallery of engravings possessed by the great publishing house of Blanchard and Lea, whence emanates a

* The typographical errors in this work, are, for a Philadelphia book on Education, not few: as Gerard for Gerhard; corda tendinæ for chordæ; cinerium for cinereum; gatrorrhœa for gastrorrhœa; spinal senses for special; hemaplegia for hemiplegia, etc. These, however, are innocent babes compared with others which continue from page to page destroying, in some instances the sense, as may perhaps be shown in the sequel.

majority of the medical books now in use in this Republic, from Maine to the gold shimmering shores of California. Those engravings if not new are useful; yet if they correspond neither to the opulence of the publishers nor to the increasing typographical elegance of the books of some rival publishers, they may still prove very acceptable to students who may not have had the same once or oftener in their text books. If Dr. Ludlow's compilation should prove to be neither the best nor the worst book of the kind extant, the 370 engravings for ornament and use ought to recommend the book, reward the publishers, and bring fame to the author, instruction to intending candidates, with fits—fits of despair at such a frightful array of questions, or, judicially speaking, *the question*, that is, the torture.

This book, which has passed through several editions is, or ought to be, or the author can make it an excellent one to carry in the practitioner's saddle-bags, to refresh his memory during his long journeys into the country, while tarrying to bring some one into, or prevent some one from going out of, this world.

Many of the engravings, however, are of no more value than hoops without a Venus in them. Of 37 obstetrical engravings one only is explained. All of the illustrated articles of the Materia Medica which have letters or numerals affixed, amounting to more than a dozen, are in the same category. Even in the anatomical department from No. 120 to 154, the same omissions occur. The student turns from A to Z, and from 1 to 20 more or less, but like the sightless Milton,

> "Finds no dawn
> But clouds instead—the book, a blank."

There is a place in Virginia called Muddeltypeg. But how could the student of geography find this spot upon a map of the world entirely destitute of the names of places? Answer that, thou great questioner, Dr. Ludlow.

As the writer of this notice has never before read any work on Examinations, he cannot err in saying that this is, with its exuberant adornment, the best he has ever examined. "A man who has never seen the sun cannot be blamed for thinking no glory can exceed that of the moon."

The Examinations is among duodecimos a colossus, expanded into 816 pages, being *enceinte* with fifteen or twenty thousand questions and answers. Very little can be said justly against the size of a book provided the expansion from within be solid and free from dropsy and flatus. The interior of this book keeps pace with the exterior dimensions with sundry woful exceptions.

In a book, such as the Examinations, it is easier to make a big than a small one. The principle of exclusion must be carried to its utmost allowable limit without sacrificing any fundamental principle or essential detail. Every question that can be eliminated, rejected, or abbreviated, adds to the value of an elementary work intended to test the qualifications of the candidate for degrees. Clear ideas, fundamental truths can generally be expressed in a few and simple words, and the examination into details should have constant reference to these elementary principles. A child will sometimes be able to repeat the rules of grammar without understanding one of these rules, and the same thing may happen in certain medical matters.

As this book is intended to be a standard for testing the education of doctors, it is the more worthy of an examination itself. It is very important that the primer and the spelling book should be examined with attention.

This book is not without platitudes and common places which can in no respect aid the student: "What is meant by the mouth? That cavity bounded above by the palatine arch, below by the tongue and muscles beneath it, before by the lips, and behind by the velum palati and pharynx. The anterior aperture is called fascial, the posterior pharyngeal." Four other paragraphs after this fashion are devoted to a general description of the mouth without any scientific description or enumeration of its organs. "Where is the abdomen situated? Between the thorax and pelvis." It might be taken for granted that no one having a belly could fail to answer this question.

"NOSE. How is this divided? Into an external prominent part and internal cavity. What are the external parts? The root; arch, tip, alæ and nostrils." If Sterne can be relied on in the matter of Slawkenbergius' nose, such questions have been raised at Strasburg as well as at Philadelphia. These answers are easy; indeed when anything is too obvious to admit of anything so plain as itself, it is usual to say that it is as plain as the nose on a man's face, which is more concise than saying it has an outside, an inside, a root, an arch; a beginning, a middle, and an end like the epic poem.

Other similar questions abound in this book: "Where are the eyes situated? In the orbits, etc." "What is the form of the *globe* of the eye? Nearly of a *spherical* figure." The answer to one question is—"Atmospheric air plays an important part in respiration." Did any one doubt it? It might be asked with more propriety—"What is death, but loss of breath?"

Nothing is more difficult than to prove a truism or a self-evident

truth, since the latter is clearer than any other proof. Ask the student to prove the existence of a material world, and his answer, the more he elaborates it, will be darker and darker, and, indeed, upon the representational theory of ideas and transmitted impressions as being alone cognizable, he must admit that knowing these only and not matter, he is left without any proof of the reality of a material world.

Instead of dwelling upon platitudes and truisms of no value, the author might have entered upon some fundamental departments of medical science which he has entirely omitted, as for instance, the physiology of reproduction, development, etc.

"What are the contents of the abdomen? Besides the peritoneum, it contains the organs of digestion and chylification, viz: the stomach, intestines, liver, spleen, and pancreas; the urinary organs, viz: the kidneys, ureters, and bladder; and lastly, part of the organs of generation." This enumeration is imperfect, omitting as it does the omenta, mesenteric and lymphatic glands, thoracic duct, lacteals, aörta, cavas, portæ, the solar plexus, etc., all of which should be viewed *in situ* before commencing the dissection of the organs in making a post mortem examination. It is true that some of these omitted structures are referred to subsequently. "What is the pancreas? It is a long, flat, glandular body of a grayish-white color." Neither here nor elsewhere is the probable size, length, nor the consistence of this and some other organs indicated. The whole description is imperfect; not excepting the color, which is not "a grayish-white" but a grayish-red, or rather a faint pink color.

"What is the gall bladder? It is a small bag which contains the bile." This trivial question contains the answer. The gall bladder is the gall bladder. Many similar questions, gravely put, virtually contain their answers: "What do you mean by varioloid, or modified small-pox?" The most concise answer would be—modified small-pox, or a disease resembling small-pox.

"How is the mesentery formed? By two layers of the peritoneum, which separate at the loose or folded edge to *surround* the intestines." Now the peritoneum, a closed sack, does not *surround*, but almost entirely covers the intestines, which latter are outside of the former in an anatomical point of view.

The color of the liver is described; "a brownish yellow." It is of a reddish brown.

"What is the color of the blood in the arteries and veins? In the arteries it is bright red, and in the veins of a *more purple hue.*" More purple than in the arteries, where it is not purple at all!

The anatomical account of the cerebral meninges is inaccurate. The internal surface of the dura mater is described as "smooth, polished, lubricated." This surface consists of the reflectiou of the adherent arachnoid, which latter membrane the author describes as being "a delicate transparent serous membrane, spread uniformly over the surface of the brain." He should have added that this membrane is not restricted to the brain, being a sack, the external portion of which is spread over the inner surface of the dura mater, the internal over the pia mater. It is therefore a closed, collapsed sack, which in the normal state, contains a little serosity, being adherent on one side to the pia mater, on the other to the dura mater.

The diseases of this serous membrane render its anatomy of high importance, being in a great degree *sui generis*. Arachnitis produces whiteness or opacity, not redness; increased thickness and tenacity, with serous, milky, gelatinoid, and sometimes sanguineous effusions into its sack. This sack is sometimes the seat of false membranes and of tubercular deposits in small hard granules, giving it in the latter case, a rough, grater-like appearance on its surfaces. The injection and vascularity of this tissue, of which Dr. Ludlow speaks more than once, do not occur in New Orleans.

To call typhus fever *typhous* fever, as the author uniformly does (pp. 410–11–12,) is a three-fold error. There is no typhous fever, as this epithet designates not a special disease but a condition which may occur in almost all maladies characterized by debility, prostration, or adynamia. There may be a typhous state in pneumonia, bronchitis, pleurisy, peritonitis, ophthalmia, phrenitis, mania, intermittent, remittent, yellow fever, dysentery, scarlatina, measles, and so on to the end of the nosology.

Typhous fever is not typhoid fever. The latter is generally considered a distinct fever, though, if the term typhous can have any substantive application, it must be to typhoid fever. This would be virtually to ignore typhoid altogether as being anything but an adynamic or prostrated condition of the vital forces, which, as has been already said, is seen in certain stages of almost all diseases. But the author does not view typhous fever as the synonyme of typhoid, because he devotes the next article after *typhous*, to *typhoid* fever, which latter he recognizes as a distinct fever, though he affirms that "it bears a general resemblance to the typhous variety." He even draws the differential diagnosis or contrast between these fevers far more prominently than usual, following up these distinctions through nearly three pages. "What," he asks, "is the general estimate of the occurrence of the affection of the glands of

Peyer? In about ninety-eight in the hundred cases. Mention cursorily the chief distinctions between the typhous and typhoid fevers? In investigating the symptoms of the typhous and typhoid fevers, we observe the latter not confined to any particular season; it commonly attacks individuals of a particular age and exposed to some unaccustomed mode of life, sometimes occurs at the same time with an epidemic of autumnal intermittent, or of typhous; when the initial period of the disease has passed, typhoid fever may be easily recognized: 1st, typhoid is usually a sporadic disease, on the contrary typhous is rarely so; 2d, typhous is contagious, typhoid is not, under ordinary circumstances; 3d, the initial symptoms of the two chiefly differ in the greater stupor, dulness, and prostration of typhous, which are in contrast with the moderate cephalalgia, disturbance of the senses in dothinenterite," etc., etc.

Now all this evidence, showing that typhous differs from typhoid, is *à fortiori* valid against the identity of the assumed typhous and typhus. Typhus, sometimes called jail, camp, ship, hospital or putrid fever, is an idiopathic, well-defined disease, and not an accidental *typhous* or adynamic condition. *Sthenicous*, and *asthenicous* would be quite as accurate in style and in pathology as the names of individual diseases as *typhous* is as the name of a special fever.

The lesions of Peyer's elliptical plates so far from occurring ninety-eight times in every hundred cases of typhoid, as above mentioned, probably occur in a well marked and grave form in but little more than half as high a ratio as here announced, while these same lesions are found, though in a diminished proportion, in other diseases.

At page 115 the *ileum* or small intestine is called *ilium* ten times, not to mention other parts of this book on education. Long before Celsus, as well as since, the term *ileon*, *ileum* from the Greek *eileo* or *eileos*, has been applied to the small intestine. *Ileus*, or *ileus volvulus*, from the days of Hippocrates, has been used to designate a grievous disease or obstruction of the ileum. The moderns have enlarged the nomenclature, as, *ileus spasmodicus*, *ileus inflammatorius*, etc. Celsus quotes the word in Greek from Diocles, who designated *ileus* as disease of the *large* intestine, a postulate which Celsus criticises as contrary to the accepted application of the term then in use, *ileus* being an affection of the *small* intestine.

This term has been used as the prefix to many words in use both pathological and anatomical, as ileo-colitis, ileo-cholosis, ileo-flavus, ileo-colicus, ileo-typhus, ileo-lumbar, ileo-cæcal valve, etc.

Ilium is the haunch bone, a portion of the os innominatum, and has in

like manner given origin to numerous prefixes in *ilio*, which represent this bone's relations to different fossæ, vessels, muscles, regions, etc.

"What are the agminated glands of Peyer, and the glands of Brunner? Elevated patches on the small intestine, and may be considered as secreting parent cells, developed in the tissue independently of the mucous surface, and only connected with this surface to facilitate the exit of their contents. Brunner's glands are situated in the duodenum, a type of more complex glandular structure."

These glands are not elevated *on* the intestine, nor are they *independent* of the mucous surface, as this description of their physiological anatomy assumes. They are imbedded not in the mucous so much as in the sub-mucous tissue, being so deeply sunken as to escape common observation unless greatly altered by congestion, infiltration, hyperæmia or ulceration. In fact, so far as the unassisted eye can decide, the Peyerian patches or illeptical plates are little recognizable in their normal state, being apparently the creation of disease. In many diseases as well as in typhoid fever, they are developed, thus altered, as in yellow fever, cholera, consumption, typhus, etc.

The lesion of the Peyerian glands so much dwelt upon, not to say exaggerated, of late, is slight, consisting of hyperæmia, granular hypertrophy, or pustulation, and rarely ulceration. This if compared with any other type recognized as a mortal lesion in the mucous tissue of the alimentary canal, as that of dysentery for instance, is insignificant as explanatory of the cause of death. As a grave lesion, it was scarcely even mentioned by comparatively modern authors of ability and observation, as Baillie, whose morbid anatomy was published little more than half a century ago. Moreover, the function of these glands in their normal state is a physiological ænigma.

Excepting occasional allusions to post mortem examination, there is but little in this book from which one can infer that the all-important science of pathological anatomy forms a fundamental part of the examination for the doctorate. Dr. Ludlow says in his preface that he claims for his book "simply what its title indicates." The title, though vastly extensive, omits pathological or morbid anatomy and even pathology altogether. That student who has just notions of the fundamental principles, and anatomical criteria or characters of general and special pathological anatomy, though he may not be able to describe all of the muscles, nerves, blood-vessels, etc., will probably make a better pathologist and practitioner than he who can describe every muscle, etc., and write all the prescriptions in Dr. Ludlow's Formulary, without having correct opinions as to the natural and morbid appearances

of the organs, tissues, fluids ; size, cohesion, density, color, vascularity; albuminuria, cysts, scirrhus, hæmatodes, tumors, anæmia, hyperæmia, gangrene, hæmorrhage, œdema, exudation, pyæmia, hypertrophy, atrophy, tubercle, etc.

The comparison of organs among themselves as to size, cohesion, color, etc., is highly instructive and necessary. The natural consistence of the pancreas, while it affords a near approximation to scirrhus in most other organs, would for most of them, clearly indicate morbid change ; conjunctivitis produces redness and vascularity—arachnitis, whiteness and opacity ; the natural color and consistence of the liver, would be morbid in the lungs or brain, etc., etc. Hence, it is important to keep in view the physical appearances produced in different tissues by the morbid changes called inflammation, hyperæmia, tuberculosis, etc.

"Does the temperature of an inflamed part ever exceed that of the blood at the source of circulation? It does not." There may be some book-builders who sustain Dr. Ludlow, but late experimentalists have fully established the contrary both in the living animal and in the recently dead human body, not to name the facts of daily practice, in which the inflamed part, as a burn, a furunculus, a local phlegmonous erysipelas, etc., on one side, or limb, is found to be hotter than the opposite one, though both get their blood from the "source of the circulation."

The treatment recommended for inflammation is blood-letting and the like, opium being allowed in "certain cases." Yes; and so are stimulants, tonics and diet. Dr. Ludlow's practice in inflammation, yellow fever, etc., etc., is sharp, sanguinary, and but little qualified. He cures apoplexy, and palsy by "bloodletting locally and generally carried to great extent," etc. The experience of the last thirty years has constantly tended to limit this mode of treatment, insomuch that it may now be regarded as applicable to exceptional cases, not as constituting the general rule. The statistics of general "bloodletting to great extent" in even apoplexy are unfavorable to that mode of treatment.

The treatment of acute inflammation by repeated "bloodlettings carried to great extent" will not always prove curative; it will, indeed, sometimes increase the disease and hasten disorganization and death. Moreover, experimental bloodlettings on healthful animals have indeed the phenomena of inflammation. The late M. Magendie bled animals from time to time until he killed them with inflammation, attended with engorgement, œdema, pneumonia, and "the entire train of what are called inflammatory phenomena." The obstetrician will often see after almost fatal hæmorrhages, these very phenomena. Woe to the woman whose doctor is not well informed herein.

"What is meant by dilatation of the heart? Amplification of one or more cavities." The answer is not so clear as the question; dilation is more appropriate than amplification. "What is pericarditis? Inflammation of the pericardium." "What is glossitis? Inflammation of the tongue." "What is amputation? The operation of cutting off a limb," etc. Many such questions and answers occupy space which should be devoted to better use, being no more edifying than the following: If you eat two apples do you not eat a couple? Yes.

Dr. L. asks: "How has yellow fever been divided? Into three varieties, the fatal, severe and mild." These divisions, and their differential diagnosis which follow, are not very edifying. Colic, or a fight with a "Plug-Ugly" might be fatal or mild. "What are the causes of yellow fever? A union of local emanation, favored by an inquinated atmosphere. What are the pathological" [anatomical] "characters of this disease? The most striking are morbid alterations of the liver, it being *pulpy, soft, yellow like rotten cork.* Is the spleen affected? Yes; it has been found altered similarly to the liver." No part of this enumeration has any foundation in the yellow fever subjects of New Orleans, excepting the color of the liver, which sometimes is yellowish or cork-colored, but generally so slightly as not to be admitted at all by many observers.

"What are [is] meant by *subjective* and *objective* sensation? By the former, we mean those sensations by stimulus originating in the body itself, especially if it act rather on the intermediate than on the peripheral part of the sensitive apparatus. By the latter, those where the stimulus is derived from without." A *sensation* which is objective or from without is a contradiction. All sensation consists in the being felt; when not felt, it is not. Sensation is always subjective, whether its cause be within or come from without. A mental state, perception or volition, may cause sensation; an external agent or impression may cause, not feel, not be a sensation. Light is not a sensation but a cause of it; thunder is not a sensation; an odor is not sensation, the amputating knife is not an "*objective* sensation," all of these are purely *objective* minus the sensation.

The author speaks of "subjective sensations produced by external pressure upon the nerves," (277) which contradicts his definition (275) in which he says "objective sensations are those where the stimulus is derived from without." Some conditions of disease are purely subjective, as affections of the mind, also pains in various organs which present no symptoms, that is no objectivity to a second person; nay the patient may have violent subjective conditions, or self cognized symp-

toms, while his objective symptoms are in absolute contradiction. His subjective state in cholera is that of a burning heat; his objective state is that of icy coldness; his subjectivity in intermittent may be that of severe coldness; his objectivity may be that of great heat, as tested by the thermometer.

Insanity is in a great degree subjective in some of its most incurable forms, and only becomes objective when it presents morbid, obvious phenomena.

Whatsoever feeling is proper to the individual alone is subjective whether it originate in the mental frame or be excited from the objective world through the medium of the senses. In a word, all the personality, its states of feeling, its knowledge, is subjective; all else is objective. There are strictly speaking but two sciences, namely, the subjective and the objective, the in-being and the out-being kingdoms.

How to get from the subjective world within, to the objective world without, by means of intermediate or representational films, phantasms, ideas and transmitted impressions, have, from Aristotle to the present, occupied physiologists, who, distrusting common sense and directly felt intuitions, have constructed numerous routes, and locomotive impressions, and have introduced explanations which have no effect but to make that which was self-evident, incomprehensible, insomuch that a rigid logic would force them to accept the legitimate and unanswerable deduction from these premises, which the great philosopher and good Bishop Berkeley drew, namely, that there is no proof of the existence of a material world, since the mind can know nothing but impressions in the sensorium.

Dr. Ludlow has, of course, given the student questions and answers in relation to the so called discoveries of the sensori-volitional, and excitomotory anatomy and physiology of the nerves. It is remarkable that of late the reputed discoverers in the anatomy of the nervous system appear to have a method peculiar to themselves, diametrically contrary to the fundamental principles of discovery recognized in all other sciences, in which the accepted maxim is, he alone discovers who proves. "To conjecture is easy: the difficulty is to conjecture rightly, and to show your conjecture to be true. It is owing to this itch of divination that scarce a discovery can be made but a prior claimant is brought into view; for when a cloud of arrows are shot in the dark, chance may direct one or two to the target. *But never did Paley say a truer thing than that* HE ALONE DISCOVERS WHO PROVES."—(*Lon. Quar. Rev.*, 1849.)

Neither the idea nor the fact that the cow-pox is a preventive of the

small-pox is due to Jenner, as he heard this from the cow milkers, yet, he is justly entitled to the honor of the discovery, because he investigated, verified, introduced, and published the discovery. The same may be said of Harvey's discovery of the circulation—of Franklin's discovery of the identity of lightning and electricity—of electrical telegraphs, as the old French encyclopædists, long before Morse, Cooke, and Wheatstone had advanced the idea—so of the utilitarian uses of steam by Dr. Darwin, who during the last century, long before Fulton or Watt, in one of his poems describes the steam car or locomotive engine and steamboat as if he were now living.

Dr. Darwin (Anno 1793) says:

> "Soon shall thy arm unconquered steam, afar
> Drag the slow barge, or draw the rapid car.
> Or on wide-waving wings expanded bear
> The flying chariot through the fields of air."

The flying steam chariot or balloon is not yet completed. It may be the sequel to the Atlantic submarine telegraph.

History shows that Bouillaud had announced before Newton proved the greatest of all discoveries, namely, the law of gravitation in the planetary system, and that "the intensity of gravitation would vary inversely to the square of the distance from the attracting body," etc.

Laënnec will lose the credit of auscultation—the discoverers of anæsthesia will give place to the poets who had a "river of Lethe, whereof who drinks forthwith forgets pleasure and pain;" the shades took a draught (the moderns smell only) of its waters before entering on the joys of elysium, to obliterate even the memory of their earthly sufferings, such as result from surgical operations, and the like.

Now if the imagining or the naming be *ipso facto* discovery, as some neurologists pretend, it will follow that nearly all discoveries have been made thousands of times before the historically recognized discoverers were born.

To assume the anatomy of the nerves, and then to assume on this basis, a complex system of physiology, can in no case constitute a valid discovery, much less can a compound of incomprehensible, barbarous Greek or Choctaw, justly claim to be so designated. Nor is the naming of a mere hypothesis, *ipso facto*, any nigher the mark. Neither in the abstract nor the concrete can any discovery be thus made. In anatomy, those who adopt this method, or acquiesce in its validity, are no friends to the experimental philosophy, and should be ranked with the dialecticians who raged in the eleventh and twelfth centuries, the Nominalists and Realists, who wrangled for and against the potency, function and

universality of names and ideas; whether these were true entities, had souls, or were only *flatus* ?

If students are to be examined in regard to these inconceivable abstractions, Dr. Ludlow ought in his next edition to furnish the following answer: Professors! You never showed us the sensorium, nor the two kinds of sensory nerves, (the ascending and the descending) nor the volitional nerves, nor the excitor nerves, nor the motor nerves, nor the secretor nerves, nor the excretor nerves; nor did you ever demonstrate to our senses traveling impressions. We could not swear in a court of justice, nor in the temple of Æsculapius to their existence, so help us God. Wherefore, pity and excuse us, lest we, your humble servants, bear false testimony and perjure ourselves, seeing that we know, though imperfectly, only one kind of nerves. We cannot bear false testimony in anatomy any more than we can in the ordinary affairs of life. *Falsus in uno, falsus in omnibus.*—Editor.

Rev. II.—1. *The Physiological Anatomy and Physiology of Man.* By Robert Bentley Todd, M. D., F. R. S.; Fellow of the College of Physicians, and Physician to King's College Hospital; and William Bowman, F. R. S., Fellow of the College of Surgeons; Surgeon to King's College Hospital and the Royal London Ophthalmic Hospital; late Professor of Physiology and General and Morbid Anatomy. Complete in one volume, with 298 illustrations. Pp. 926, large 8vo. Philadelphia: Blanchard & Lea, 1857.

2. *Manual of Physiology.* By William Senhouse Kirkes, M. D., Fellow of the Royal College of Physicians; Assistant Physician to, and Lecturer on Botany and Vegetable Physiology at, St. Bartholomew's Hospital. A new and revised American, from the last London edition, with 200 illustrations. Pp. 584, 12mo. Philadelphia: Blanchard & Lea, 1857.

In the medical sciences generally, and particularly in physiological anatomy, the student should, other things being equal, prefer works which are based on experimental researches made by the authors themselves. Such works even when they contain nothing absolutely new or original, possess, nevertheless, paramount claims over mere compilations. The medical sciences require to be investigated and reïnvestigated, tested and tested again, enlarged and generalized, for the purpose of obtaining greater certainty and universality. It is very desirable to find out that the hundredth trial or repetition, has confirmed the ninety-nine which preceded.

The Physiological Anatomy of Professors Todd and Bowman, in a great degree, rests its claim to acceptance upon an experimental basis. The authors say, "We aimed at resting our anatomical descriptions, at least as it regards the more important points, upon our own investigations, and at repeating former experiments, or devising new ones, whenever questions of sufficient interest presented themselves. While we humbly confess how small have been the advances attributable to our own labors, the immense extension given to the sciences of anatomy and physiology during the last fifteen years, may be admitted as some explanation of the delay that has occurred in the publication of the work, a delay that has been a constant source of regret to us, since we began to discover how impossible it would be for us to complete it within the term originally contemplated."

Experimental investigation, how good soever it may be in itself as the means of scientific deduction, is, in incompetent hands, liable to great abuse and may be prostituted to the purposes of a biased, uncandid mind bent upon upholding a favorite hypothesis. Such an experimenter, by moulding and arraying ill-understood, *ex parte*, or perverted facts, by omitting or undervaluing whatsoever has an import contrariwise to his wishes, becomes a more dangerous guide than the utopian system builder whose imagination supplies the place of laborious experimentation.

Professors Todd and Bowman in the work under consideration, have with equal candor and ability steered clear of the whirlpool of Charybdis and the rock of Scylla, that is to say, the whirlpool of heterogeneous facts and the rock of dogmatism.

In perusing this work, a certain class of readers may ask, are the claims of these authors to be estimated by the amount of their original experiments? or have they simply verified the experiments of others? and to what extent? or does their chief merit consist in their sound judgment in appreciating the experimental contributions of others? Perhaps these authors believed (what indeed is very probable) that a vast proportion of medical men as well as the public, care not much for processes, but for results only. Nevertheless, it is of great importance to the rigid logician, as also to the sceptic, to know the precise methods of procedure in the building of an experimental book—a towering pyramid of learning. The number and nature of the experiments in chemistry, vivisections, etc., as well the opinions and conclusions predicated upon the phenomena enumerated, is important to the student who may wish to verify, estimate, modify, adopt, or reject for himself. A certain degree of unrest not to say scepticism, in connection with the ceaseless efforts to compass new truths and to eliminate fundamental principles

in medical science, must ever characterize the philosophizings of the most competent experimentalist, until he can say with satisfaction to himself, I have experienced much and long. So far there is no exception to this law or that principle. The ground on which I had rested some opinions formerly, has been washed away by the waves of successive experiments. But how meanly soever my hut may be, I build upon the rock, and gather, as Newton did, some pebbles while the great ocean of truth lies before me almost unexplored.

With Cullen, Brown, and Broussais, theoretical medicine ceased almost entirely, that is, no general theory of theirs or of their successors of the present generation, reigns supreme. For homœopathy, hydropathy, Thompsonianism, etc., no more than tranceism or spiritualism can, with any propriety, claim to be sound theories.

Observation, experiment and their rational interpretation, classification and deduction, the surest routes to the truth, illustrate and establish sundry leading principles, none of which rise into absolute universality, so as to form a complete general theory of medicine. Some of the old theories have, indeed, been found applicable to certain groups of phenomena, and have rendered good service in accounting for many facts.

Thus the humoral and other theories, now estimated at their proper or approximative value, were formerly, in many respects, overrated or underrated. Chemical, physiological, anatomical, and pathological research and discovery have afforded the material for a better appreciation of theories.

In this interrogation of nature, the narrow limits of the human understanding, and the vast range of possible error, render the numerical method of investigation, of inestimable value in medicine. By this method, probability, varying from zero to an almost absolute certainty, may be estimated in practical matters of the utmost concernment to health, limb, and life.

The theoretical *interregnum* which now exists or is filled up with voluminous and able works, particularly such as treat of physiology (Dunglison, Carpenter, Todd and Bowman, etc.,) is a favorable circumstance for true science. Theories are virtually things, and very serious things too. The four cardinal humors of Hippocrates, Bile, Atrabile, Blood, and Phlegm, Van Helmot's immaterial gaseous, intelligent principle, the Archæus ; Stahl's Anima, or living spirit ; Boerhaave's *Lentor* and *Error loci* ; Cullen's Spasm ; Brown's Stimulus, Excitability, Sthenia and Asthenia ; Broussais' Broussaisism, and Expectationism—all these, and many other apparent abstractions, have tyranized over the human economy and its many organs : that is, these

theories have commanded in the battle against the whole army of maladies, and have directed every therapeutic movement. Flying grape, cannister, and bombshells are not, for instance, more real, than were Cook's pills, twenty years ago, in the valley of the Mississippi for the relief of the congestion of the vena cava and its branches! The theory died during the life-time of its learned author, who lately descended to the tomb.

The comparatively modern opinion, which daily grows stronger, that Physiology is a most reliable guide to pathology and therapeutics, being well founded, it is of great importance that the physician should inform himself thoroughly in the fundamental principles, details, and constant progress of this science, which he cannot do without reading the new works upon this department of knowledge, and the more so, should he not devote himself to its laborious experimental investigations upon the inferior animals, in connection with the morbid phenomena which he witnesses in attendance upon the sick.

There is an earnest, it may be an able, class of practical men who listen with incredulity, perhaps with aversion, or even with indignation, to this *Io triumphe!* in favor of medical progress. They admit that physiology, pathological chemistry, micrology, physical diagnosis, surgery, and pathological anatomy, have advanced or are advancing towards perfection. They affirm, and with much truth, that therapeutical certainty, or the curing of the sick, has not advanced with equal step as compared with other branches of medicine. The cure! the cure! tell us that! If, however, therapeutical treatment has not kept pace with the knowledge of the diagnosis, the seat, and the anatomical characters of disease, it is, nevertheless, very evident that this latter kind of knowledge is, at the very least, the only reliable basis for any rational treatment which exists or which may be discovered hereafter. If the dream of therapeutists concerning a panacea for each disease should ever become a reality, the medical sciences alluded to, will be the guides to a just and discriminating diagnosis, without which, even a specific cannot be applied rationally and successfully.

It is not within the narrow scope of these remarks to review, in detail, at present, the learned and useful work of Professors Todd and Bowman on the Physiological Anatomy of Man, now completed and published in a large volume abundantly illustrated––a book imbued with the Hallerian and Baconian spirit of the inductive philosophy, and one very likely to prove attractive to men of education and philosophers beyond the pale of the medical profession. It is a magnificent contribution to British medicine, and the American physician who shall fail to

peruse it, will have failed to read one of the most instructive books of the nineteenth century.

The limits of this journal will not allow of the insertion of the notes which had been written on several chapters of this work--a book the greater portion of which had been so long before the profession stamped with its *imprimatur*, that there can be no more need to dwell upon its merits than upon the merits of Dunglison, Carpenter and others, whose works have been thoroughly appreciated and can only become obsolete by the farther progress of discovery.

Of the second work designated at the head of this article, namely, the Manual of Physiology, by Dr. William Senhouse Kirkes, of London, with additions by Dr. J. Aitkin Meigs, of Philadelphia, it may be truly said that, for its magnitude, it has no rival.-- EDITOR.

REV. III.—*L'Afrique Médicale. Gazette Médicale de l'Algérie. Janvier, Février, Mars, et Juillet, 2me année. (Ce journal parait chaque mois.) Rédacteur en chef, le Docteur A. Bertherand, médicin principal à l'armée d'Afrique, etc.*

WHEN we contemplate the science of medicine in connection with the varied conditions and interests of our species, whether in so doing we direct our attention to the social, the religious, the moral, the scientific, the belligerent, or the æsthetical, we cannot fail to be struck with the intimate and necessary relations which constantly present themselves. In such contemplation but little is seen which cannot be made to wear its medical aspect without either straining or distortion. The little and the great—the revolutions of the polka and the waltz, as well as those revolutions which bring forth fugitive patriots and headless kings, have all their physiology, pathology, therapeutics, hygiene and other medical relations. Wherever man exists, the legitimate jurisdiction of the physician is, *ipso facto*, established. His mission is well indicated by that noble apothegm of the poet; *Homo sum, et humani a me nihil alienum puto.*

The numbers of the journal above indicated, and which are now lying on our table, call forcibly to our mind the relation existing between the progress of medicine and the march of war and conquest. Mars is no longer the implacable ruffian of his early days; but affects the company of the mercifully disposed, and to this end he is seen marching hand in

hand with Æsculapius, the powder and ball of the former only preparing the way for the powder and pill of the latter.

As medical journalists we pray daily that we may never wander out of our legitimate field, which is large enough in all conscience. We hope we may never be so presumptuous as to take it on ourselves—without good and sufficient professional reasons—to teach statesmen, politicians, generals, judges, or ecclesiastics, either what they should do, or what they should leave undone. It cannot, therefore be expected that we should have a word to say either for or against the system of annexation, conquest, aggrandizement, filibusterism—which finds favor, and which has ever found favor with powerful nations—save only in so far as that system may be found to affect the progress and condition of medicine. In relation to the conquest of Algeria we would not wander from our path. We leave it to a great and polished nation to glory in its extension of territory; we leave it to the commerce of the Mediterranean to rejoice at the downfall of the pirate; we leave it to the benign soldier of the Cross to return thanks that the False Prophet has been discomfitted in one of his strong holds; let the law boast of the *Code Napoleon* to the exclusion of the mystic rhapsodies of the Koran; let all exult or lament as they may find it meet; but as for ourselves, holding communion as we now do, with our *cher et très honoré confrère M. le Docteur A. Bertherand*, we feel quite free to say, that so far as the interests of our great medical confraternity are concerned, we are heartily glad that the Dey of Algiers has had his day. It is refreshing to hail from the *ci-devant* pirate-land, a first class medical monthly speaking in the language of Corneille and Racine, the truths of our noble science. Speaking as a physician, therefore, we do not begrudge our ancient ally her acquisition of territory however much we may, as an American, feel pinched ourselves for territorial elbow-room, hedged in as our people are by oceans east and west, and neighbors north and south.

But we give up the questions of conquest and territorial aggrandizement as questions of public policy and justice to those to whom they properly belong. It appears not unlikely that a few powerful nations of Christendom may ultimately render themselves masters of the world notwithstanding their merely *theoretical* horror at the idea. Practically, the necessity appears to exist. Waiving the consideration of the premises, however, save only in a medical point of view, we have no hesitation in saying that it were eminently for the benefit of our science, that the mastery should be realized as speedily as possible. Till legitimate medicine shall have reared her head in all parts of the habitable globe, and spoken the truths which grow out of faithful observation and expe-

riment, we must ever remain ignorant of many of the very elements which properly belong to our science, and fundamental errors are likely to be handed down from generation to generation without the means of correction.

Let us take, for instance, the subject of epidemics, in relation to which there are many fundamental points, which—if ever indeed they admit of explanation at all—can only be elucidated by an almost world-wide series of local observations. The good service done to the cause of our science in Algeria, should prevent us from lamenting, should the nation which now controls that country help itself to the whole of North Africa, from Morocco to Egypt, and send the native rulers to France on the same mission as was amply fulfilled by Abd-el-Kader himself.

We refer our readers to the Med. and Surg. Jour., for November, 1855, in which will be found a translated notice of two able, curious, and interesting works on Medical Algeria, the one by Dr. A. Armand, and the other by Dr. E. L. Bertherand.

The numbers of the *Gazette* before us are replete with highly interesting local matter, illustrative of the meteorology, diseases, etc., of the country, giving the monthly bills of mortality of the city of Algiers, with detail of age, sex, nationality, disease, etc. We had marked out some interesting extracts and statistics for insertion in this Journal; but space is at present wanting. M. MORTON DOWLER, M. D.

REV. IV.—*Status of this Journal.*

TO THE PATRONS OF THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, *salutem in Æsculapio.*—Suddenly—as the parting of the Atlantic cable—Messrs. D. C. Jenkins & Co. parted from their connection with this Journal. It is believed accidental circumstances rather than choice, determined them originally to become its proprietors, and its transfer to others had the editor's sanction.

On the second day of September, which inaugurates a new era in the editorial department and proprietorship of the Journal, Doctors Warren Stone, James Jones, and Stanford Chaillé purchased its subscription list together with its entire assets. At the same time, its proprietors—henceforth co-editors—passed an act before a Notary, forming a permanent company, whose objects are to enhance the scientific value and claims of the Journal, to augment the number of its scientific contributors, to extend its usefulness, and to improve as far as possible its typographical execution, etc. The conduct of the incoming editors towards the present editor was, of course, just. But it was more,

It was kind. They wished to retain his services, and contracted for them accordingly, until May, 1860, without, it may be, rigidly looking to their own pecuniary gain.

These movements chiefly concern another party, namely, the patrons of the Journal, who are the breath of life in the nostrils of journalism.

In future, the subscribers (who can at once snuff out the brightest editorial lights in the land) will receive services greater in number, weight and value than heretofore.

The incoming editors for conceded ability and extensive experience in practical medicine, surgery, etc., stand on as high a level as the highest. They enter upon this enterprise, *con amore*, with a wish and a will to enhance the value of the Journal, and to emulate, if they can not excel, their honorable rivals in journalism in this and other lands.

This Journal, now advanced into its second decennium, is the depository of many able contributions by hands that have "lost their cunning." But Carpenter, Harrison, Hort, Hester, and others live and speak in its pages. The Pagan sages held as a maxim, that life without letters is death. Is there one subscriber to this Journal who cannot contribute some useful fact or paper? If the love of fame is not a sufficient motive for the scientific laborer, the desire to be useful is. He who has been benefited by the writings of others, should in return contribute in like manner. On reviewing several years of journalistic life and experience, it appears to the editor that his relations to the patrons of this Journal (with nineteen twentieths of whom he has not the honor of a personal acquaintance) have been, so far as he can judge, altogether agreeable, at least to him. Editorial errors, prejudices and short comings seem to have been passed over silently—perhaps forgiven. There is, however, one unwelcome *souvenir* which rises like Banquo's ghost, that is the leger-book of this Journal, which is said to show the ghastly figures of an enormous and constantly increasing debt due from subscribers. Although the editor has neither now nor prospectively, even the remotest pecuniary interest in either the losses, gains or revenues of the Journal, yet it is to him a source of regret that his labors and influence have been too poor and insufficient to impel or pursuade the consciences of numerous readers to make a just and prompt compensation to the proprietors. It seems that the indefinite postponement of payment for periodicals is becoming the rule, not the exception. This is the *vis inertia* which represses literary enterprise and virtually fetters the hands of the cultivators of science. If payment has been withheld from this Journal upon the principle *poor editor, poor pay*, that demurrer or plea will not be admissible after the kalends of November, *anno* 1857.

EDITOR.

Editor's Office.—Notices.

SEPTEMBER, 1857.

Communications received from Samuel A. Cartwright, M. D.; Yelverton B. Egan, M. D.; W. C. Lewis, M. D.; George S. D. Anderson, M. D.; Joseph B. Payne, M. D.

BOOKS AND PAMPHLETS RECEIVED.

Statistical Report of the Sickness and Mortality in the Army of the United States, compiled from the Records of the Surgeon General's Office; embracing a period of sixteen years, from Jan., 1839, to Jan., 1855: Prepared under the direction of Brevet Brigadier General Thomas Lawson, Surgeon General United States Army, by Richard H. Coolidge, M. D., Assistant Surgeon United States Army. Pp. 703, 4to. Washington. 1856. From Brevet Brig. Gen. Thos. Lawson, Surg. Gen. U. S. A.

Manual of Physiology: By William Senhouse Kirkes, M. D., F. R. C. P.; Assistant Physician to, and Lecturer on Botany and Vegetable Physiology, at St. Bartholomew's Hospital; a new and revised American, from the last London edition, with 200 illustrations. Pp. 581, large 12mo. Philadelphia: Blanchard & Lea. 1857. From Mr. J. B. Steel, boookseller, 60 Camp street, N. O.

Transactions of the Second Session of the Medical Society of the State of California. Pp. 43. Sacramento. 1857.

Transactions of the College of Physicians of Philadelphia. Pp. 79 to 139. Lippincott & Co. 1857.

Experiments upon Digestion: By Francis G. Smith, M. D., Professor of the Institutes of Medicine in the Medical Department of Pennsylvania College. Pp. 18. Philadelphia. 1856.

Principles of Medicine: an elementary view of the causes, nature, treatment, diagnosis and prognosis of Disease; with brief remarks on Hygienics, or the Preservation of Health: By Charles J. B. Williams, M. D., F. R. S.; a new American, from the third and revised London edition. Pp. 486, 8vo. Philadelphia: Blanchard & Lea. 1857. From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.

Mortality Report of the Board of Health of the State of Louisiana, for the first six months of 1857. Pp. 8. New Orleans. 1857. From H. D. Baldwin, M. D., Secretary of the Board of Health.

An Address: By George A. Gordon, Esq., delivered at the commencement of the Savannah Med. Coll., March 2d, 1857. Pp. 38. Savannah. 1857.

The Retrospect of Practical Medicine and Surgery, being a half-yearly Journal, containing a retrospective view of every discovery and practical improvement in the Medical Sciences: Edited by W. Braithwaite, Lecturer on Obstetric Medicine at the Leeds School of Medicine, etc. Part XXXV. July, 1857. Pp. 351. Uniform American edition. New York: Stringer & Townsend, 222 Broadway. 1857. From the Publishers.

An Address delivered before the Medical Society of the State of Pennsylvania, at its Annual Session, held in West Chester, in May, 1857: By R. La Roche, M. D., President of the Society. Pp. 51. Philadelphia. 1857.

Transactions of the Indiana State Medical Society, at its Eight Annual Session, held in the city of Indianapolis, May 19, 1857. Pp. 74. Indianapolis. 1857.

Therapeutic Cultivation; its Errors and its Reformation; an Address delivered to the Tennessee Medical Society, April 7, 1857: By E. B. Haskins, M. D., President. Pp. 28. Nashville. 1857.

A Claim of Priority in the discovery and naming of the Excito-Secretory System of Nerves: By Henry Fraser Campbell, M. D., Member of the American Medical Association; Professor of Comparative Anatomy, etc., in the Medical College of Georgia, etc., etc. Pp. 18. Augusta, Ga. 1857.

Transactions of the South Carolina Medical Association. Pp. 64. Charleston, S. C. 1857.

Remarks upon Fractures of the Scapula: By. L. A. Dugas, M. D., Professor of Surgery in the Medical College of Georgia. Pp. 22. Augusta, Ga. 1857.

The Use and Abuse of Tobacco: By J. Boring, M. D., Professor of Obstetrics, etc. Pp. 16. Atlanta, Ga. 1857.

The Constitution and By-Laws of the Montgomery County (Ohio) Medical Society; and the Code of Ethics of the American Medical Association. Pp. 24. Dayton. 1857.

Twelfth Annual Report of the New York Life Insurance Company. Pp. 60. New York. 1857.

The Half-Yearly Abstract of the Medical Sciences: being a Practical and Analytical Digest of the contents of the principal British and Continental Medical Works published in the preceeding six months, together with a series of Critical Reports on the Progress of Medicine and the Collateral Sciences during the same period: Edited by W. H. Ranking, M. D., Cantab., Physician to the Norfolk and Norwich Hospital, and C. B. Radcliffe, M. D., Lond., L.R.C.P., Physician to, and Lecturer on Materia Medica at, the Westminister Hospital. No. xxv. January, June, 1857. Pp. 284. Philadelphia: Lindsay & Blackiston. 1857.

Report of the Origin of the Yellow Fever in Norfolk during the Summer of 1855, *made to City Councils, by a Committee of Physicians.* Pp. 44. Richmond, Va. 1857.

Annual Circular of the Medical Department of the University of Louisiana. Session of 1857–58. Pp. 16.

Annual Report of the New Orleans School of Medicine. Pp. 8. 1856–7.

The Physician's Visiting List, Diary, and Book of Engagements for 1858. Philadelphia: Lindsay & Blakiston. From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.

On the Introduction of the Sponge-Armed Probang into the Larynx and Trachea: By Dr. Horace Green. Pp. 14. New York. 1857.

Nosology and Meteorology of Memphis, Tenn.: By Daniel F. Wright, M. D., Secretary of the Board of Health; Professor of Physiology and Pathology in the Memphis Medical College. Pp. 23.

The Use of Water in the Treatment of Fever: By Isaac Chasselberry, M. D. Pp. 21. Philadelphia. 1857.

Life: Its Relations, Animal and Mental; an Inaugural Dissertation: By J. Dickson Bruns, A. M., M. D. Pp. 58. Charleston. 1857.

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REV. II.—1. The Physiological Anatomy and Physiology of Man: By Robert Bentley Todd, M. D., F. R. S.: Fellow of the College of Physicians, and Physician to King's College Hospital: and William Bowman, F. R. S., Fellow of the College of Surgeons, etc., etc. Complete in one volume, with 298 illustrations. Pp. 926, large 8vo. Philadelphia: Blanchard & Lea. 1857. 2. Manual of Physiology: By Wm. Senhouse Kirkes, M. D., Fellow of the Royal College of Physicians, etc., etc. A new and revised American, from the last London edition, with 200 illustrations. Pp. 584, 12mo. Philadelphia: Blanchard & Lea. 1857 ... 281

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THE NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL

FOR NOVEMBER, 1857.

ORIGINAL COMMUNICATIONS.

Art. I.—*The Treatment of Pulmonary Consumption*: By Samuel A. Cartwright, M. D.

There is an intimate connection between respiration and assimilation, which should never be lost sight of in the treatment of consumption. However good the appetite and digestion may be, unless there be a free ingress and egress of the atmosphere into the air-cells, the patient will emaciate. What is called *dulness* is an absence of the vesicular murmur; but bronchial respiration, voice and cough, clearly indicate structural disease or great obstruction in the tubes leading to the cells. Although the respiration may be feeble or loud, it is imperfect in proportion as the air is excluded from the cells. It is vesicular respiration which is associated with assimilation as cause and effect. The vapor, from boiling cane juice, is a very effective means to clear the tubes, leading to the air-cells, when obstructed by tenacious secretions, pellets of mucus, or contracted from irritation and a thickening of their lining membrane. The free play, tone and activity of the involuntary muscles expanding the chest, is as essential to perfect respiration as an open state of the air tubes. If the vital involuntary power, which keeps in perpetual motion the respiratory apparatus, be too feeble to expand the chest sufficiently, imperfect assimilation will be the consequence. In addition to the perpetual exercise of the involuntary muscles, the occasional exercise of the voluntary to assist the involuntary in expanding the chest, and to give activity to the circulation of the blood, is also requisite. Violent exercise, or any thing which exhausts the vital powers by producing fatigue, is objectionable, as it also exhausts the power which keeps in activity the involuntary muscles. Forced breathing through a tube or in any other manner, except for a short time to re-

move some temporary obstruction to the passage of the air into the cells, is not advisable from the fatigue and muscular exhaustion it occasions. The lungs must be expanded, but they had better be expanded by giving activity and free play to the involuntary muscular apparatus. The involuntary muscles never tire or flag in their action, while supplied with their appropriate stimuli. Whereas the voluntary soon tire and cease to respond to stimuli or to obey the will until after they have rested awhile. Horse back exercise is very favorable to a free play of the involuntary muscles concerned in respiration, and at the same time assists the process by calling into action a large number of the voluntary muscles without fatiguing them. The involuntary muscles, although removed from the empire of the will, nevertheless respond to psychical influences, and perform their unremitting labor with more or less activity and energy according as those influences may be depressing or exciting. Whatever expands the mind links it with external objects, and awakens into activity all its dormant powers, gives increased energy to the involuntary muscular forces moving the thorax, and makes the respiration more perfect. On the other hand, whatever depresses the mind, drives it in upon itself, lulls it to sleep and shuts it out from the stern realities of real life, tends directly to diminish the energy of the involuntary muscular forces of the respiratory apparatus, and thereby causes the respiration to be too imperfect for the required arterialization of the blood and for the proper assimilation of the nutritious juices furnished by the digestive system. The nostrils involuntarily dilate and the chest expands when the mind is awakened and struggling to take an active part in the exciting scenes of the world without. More air is taken into the lungs, as if to feed the awakened mind, and to give it more power to struggle against opposing forces. But when driven in upon itself by fear, grief and despair, or left to languish in the lap of ease and sloth, or coaxed out of the real world by fancy reading to dream in a vain imaginary one, the lungs almost cease to play and the heart beats with less force and energy.

As psychical influences enervate or strengthen the dynamism of the respiratory process, they cause, cure or prevent consumption according to the action they produce on the nervous system. Mere physical means will not cure consumption, because the disease is radicated in an enervation of the involuntary muscular system, and has a constant tendency to feed itself, by reason of the defective respiratory movement, causing defective assimilation, and thereby increasing the enervation.

The motive power of the respiratory and circulatory apparatus is muscular. Whatever question there may be in regard to the power of

that immaterial essence, called the mind, over other forms of matter, there is no question of its power to move that material substance, called muscle. As far as the voluntary muscles are concerned, the will, an immaterial attribute of the immaterial mind, is almost their only motive power. The involuntary muscles, although not under the influence of the will, are nevertheless influenced by other attributes of the mind. Fear acts as a sedative upon them, and joy as a stimulant. In the disease, called consumption, mere physical agencies are insufficient to impart to the involuntary muscular system, on which the vital function of respiration depends, sufficient energy to maintain its integrity. Hence the necessity of calling in the aid of psychical means to give energy to the involuntary muscular apparatus which moves the thorax and heart. To effect this desirable purpose, all the faculties and powers of the mind should be awakened and kept in a state of tension.

We have no woods now, as the early pioneers had, filled with hostile Indians to keep the mind awake, and in a constant state of tension to guard against their wiles; no wars, as that of the Revolution, to bring into play all the mental powers, and thereby to effect cures of consumption, as in the days of Rush. But when the principle, or *modus operandi* of psychical influences, is understood, there are a thousand other ways by which the intelligent physician can call them to his aid to assist him in combatting with that fell destroyer of the human race—pulmonary consumption.

That psychical influences are all-powerful, both in the prevention and cure of the disease, there is abundant evidence, (besides that adduced by Rush in the Revolution,) to be found in the history of the pioneers of our western and southern wilderness. It is well known, that among the early pioneers, pulmonary consumption was almost unknown. If not actually cured, it was at least prevented. When I first commenced practice in the Alabama territory, before its admission as a State, I would have fallen into the error of believing that moving south prevented consumption, (so rare was the disease among the early settlers,) if I had not previously visited the northern and western frontier and found the same remarkable exemption among the pioneers of that region. This exemption is often attributed, by those unacquainted with the entire history of our backwoodsmen, to their being, *ab origine*, a healthier, hardier class of people than their kindred in the old States or their descendants in the new. But as far as my observation extends, they were, as a class, less healthy and vigorous, when they left their homes in the Atlantic States, than the people they left behind them. A more squalid, sallow, unhealthy, consumptive looking people, (a large

portion barking with a cough,) than those that constituted the emigrant trains that were daily seen slowly wending their way to the far West and South, could with difficulty be found among the inhabitants of the old States who remained at home. The poorer classes emigrated, not the richer. The former were the more unhealthy of the two. They were mostly tenants and not proprietors of the soil, and generally occupied more unhealthy localities than their landlords, who would naturally choose the healthier places for their own family residences. Where the emigrating tenants did not dwell on the sickly water courses, but on healthy hills remote from them, the land was, in most instances, so poor, (I speak from personal observation of eastern Virginia,) as not to afford enough to pay their rents and to leave them in possession of sufficient means to purchase the comforts of life, required to preserve their health. It is very true that the pale, sallow, consumptive looking men and women, and wormy children, who constituted the larger portion of the emigrants from the malarious districts and the worn out old fields of the Atlantic States, speedily became the hardy, bold and adventurous pioneers of the western and southern wilderness. It was not the mere exercise in traveling, which produced the wonderful metamorphosis, but the increased energy imparted to the respiratory organism and the circulation, when the involuntary muscular frame work was made to feel a new dynamic force, strong and inexhaustible, generated by an awakened mind. Nothing was better calculated to awaken every mental faculty and to keep the mind in a constant state of vigilance and attention to surrounding objects, than the dangers from the Indians and wild beasts and the necessity imposed on the pioneers of providing food, raiment and shelter for themselves and families in a howling wilderness, beyond the boundaries of civilization. Under such excitement of the mind and nervous system, they were constantly growing in physical strength and intellectual energy, from the time they left their homes in the old States, until they had subdued the wilderness, driven off the savages and found themselves lords and masters of fertile farms in the southern and western territories. Until then they had no consumption among them. Those who had commenced their journey with a cough, found that it left them, as did enlarged spleens, protuberant abdomens and swollen glands, without knowing the reason why—or why, as the abdominal viscera became smaller, the muscles of the body and limbs became larger, firmer, and stronger. Many of them attributed the change to the use of fat bear meat as a diet. Fat bear meat is, no doubt a better incrassent than cod liver oil, being easier of digestion and more nutritious, but its use as a diet was not general, and is insufficient to account for the phenomena.

It is well known that the muscles swell, the nostrils dilate, the chest involuntarily expands, and soldiers grow larger in body under the excitement of mind caused by the sound of the war bugle and the roll of the drum; but it should not be forgotten, that every thing which awakens the spirit within, to make its tenement of clay take an active part in the exciting scenes of the world around, brings into action an additional dynamic force, gives strength and energy to the muscular mechanism on which the circulation and respiration depend; and this psychical influence has only to be invoked, to become a powerful remedial agent in the cure and prevention of consumption. It is more available in that class of consumptive patients whose minds are originally strong and active, and whose bodily organizations present the best specimens of the finer and more delicate forms of material structure—having fair complexions, thin, smooth skins—countenances illuminated under excitement, and varying like changeable silk with every passion and emotion of the mind. But this is the very class of persons most liable to the disease. They are the very class of persons whom a wise Providence seemed to have designed as chosen instruments in the work of reforming and bettering the condition of mankind, and to lead the way in human progress. Hence they have imposed upon them the penalty of pulmonary consumption for not fulfilling their high destiny. They must be active and take a leading part in the active duties of life, and mingle in the exciting scenes of the world or die with phthisis. Born to command and to conquer nature, the will is strong, from the voluntary system predominating over the involuntary, to a higher degree than in the opposite classes of the human race with weak wills, feeble intellectual capacities and coarse bodily organizations. The latter, physically constituted to be led and governed by the more intellectual class, may sink down into sloth and inactivity of body and mind with but little risk or danger from consumption; because their involuntary muscular systems, as in the brute creation, are sufficiently strong to carry on the circulation of the blood and the respiratory process without any aid from the mind. Whereas with the highly intellectual portion of mankind, intellectuality is itself a necessary stimulant to the healthy performance of the functions of organic life. So weak and imperfect are the organic actions in intellectual children, they are apt to die before puberty, or to perish with consumption soon afterwards, unless the pent up mind within is awakened, expanded and put in relation with the external world, or let out into it, as it were, by a proper system of physical education. With them, organic life languishes under abstract studies, want of exercise and confinement from the open air and light; for the plain reason, that

being originally feeble, it requires the aid of psychical influences to keep it in sufficient activity for a due performance of those organic functions—respiration, the circulation, digestion and assimilation. Under that stimulus to organic life, the body daily grows more and more symmetrical, and the disproportion, observed in intellectual children, between the head and limbs—the nerves and muscular systems—the glandular and respiratory becomes less; and the tendency for one hip or shoulder, or one half the body to outgrow the other, so often observed in intellectual children and in consumptive patients, disappears.

The history of the pioneers, at least a large portion of those who emigrated from Virginia, Maryland and the Carolinas, if ever correctly written, would teach many useful lessons in regard to physical education and the best means to arrest and prevent consumption. Although mostly poor, uneducated, improvident, sallow and sickly, no better blood circulated in the veins of any of the human species than in theirs. They inherited the fine organization and the sanguinio-nervous temperament of their ancestors, the cavaliers. Their fathers and grand-fathers were the heroes of the Revolution, and devoted their time, talents, lives and fortunes to the grand work of achieving American Independence, leaving them, their descendants, in most instances, in poverty and without the means of acquiring an education. Monotonous labor afflicted those with rheumatism whose progenitors were gouty, while sedentary employment or an inactive life cut them off with consumption or deformed them with glandular affections and visceral engorgements. Their minds, naturally strong and expansive, made them restless and discontented with their condition as tenants and dependants, and created a desire for mental excitement in the novelty, dangers and hardships of life in the wilderness. Instead of being appalled and kept at home, as any other people of weak, timid, selfish minds would have been, by the dreadful stories of Indian depredations in way-laying, shooting, tomahawking, scalping and torturing men, women and children on the frontier settlements; such stories only fired them with an irrepressible desire to hasten to scenes where the danger was the greatest. They made their exodus from the old States in families, or separate and detached parties, as the spirit moved them, without much system or military organization, each emigrant train acting for itself independent of any others, being its own pilot and providing its own arms and equipments, and each encumbered with a goodly number of helpless women and children, who could not be left behind, as they had no one to provide for them. Hence they shared the dangers with their husbands, fathers and brothers. From the time of their departure until they had conquered the Indians

and planted civilization in the wilderness, their bodies and minds were daily receiving the many inestimable blessings, which nothing but a good physical education can so well bestow. Physical education not only strengthens the body and fortifies it against morbid influences, but it expands the mind, exalts the senses and awakens the observant faculties. So much was this the case with the pioneers, that not a leaf rustled or a twig cracked in the woods and cane brakes around them, escaped their notice. The same psychial and physical influences, which gave sharpness to the sight, acuteness to the ear, steadiness to the hand in levelling the rifle, and strength to the muscles in grappling with the savage, gave increase energy to the functions of respiration, assimilation and digestion; thereby casting out of the body the seeds of disease, and converting the pallid, soft and feeble emigrant into the hale, hardy, healthy backwoodsman.

While the history of the early pioneers tells how consumption may be prevented and even cured, the history of some of their descendants tells what will cause it and make it incurable. It tells, that an unprofitable life of indolence and ease, with the mind caged from the real world, and fed on vain abstractions mistaken for true science, and novel reading for literature, will as certainly cause consumption and give it the character of an epidemic, as heat and miasm the intermittent fever. In a word, whatever tends to diminish the dynamic forces of the involuntary respiratory muscles, or to exclude the atmospheric air from the cells of the lungs, predisposes to the deposition of tuberculous matter; on the other hand, whatever tends to invigorate those forces and to keep the air tubes open; prevents such depositions from forming, and from softening after they have formed. The cold, dry, dense atmosphere of a hyperborean region, acts as a powerful stimulus on the muscular system generally, as proved by the proverbial industry and activity of the northern people. The involuntary, no less than the voluntary muscular system, receives increased power from a cold, dense atmosphere. Such an atmosphere penetrates obstructed air tubes, that a rarified, warm and humid air could not open. A cold climate, in winter, is particularly beneficial for that class of consumptive patients mostly found in warm latitudes and in malarious districts, who have a sallow, dingy complexion, feeble circulation, cold feet; complain of a disagreeable sensation of chilliness, and a liability to take cold from any sudden change of temperature or the least exposure to the weather. The greater amount of oxygen inhaled, in a cold, dense atmosphere, vivifies the blood more effectually, and sends it to the periphery of the body, where it acts as a capillary stimulus, warms the extremities and removes chilliness. Whereas, for

that class of patients who have fair skins, bright, clear complexions, hot hands and feet, and an irritable condition of the lungs from an active circulation, a warm, moist climate, or even a malarious locality, is the better, until a derivation to the abdominal viscera occurs—known by a sallow hue and the waist increasing in circumference.

When the respiration of cold air constricts the bronchial tubes, excluding the air from the cells, or when the tubes themselves are obstructed with tenacious bronchial secretions or pellets of mucus, the respiration of the vapor arising from boiling cane juice affords a speedy and effectual remedy. In all cases in which vesicular respiration is imperfect, assimilation will also be imperfect, and the patient will emaciate. The biceps and pectoral muscles are the first to diminish, when any cause excludes the required volume of air from the pulmonary cells.

I did not recommend the sugar house for those who have cavities in the lungs, yet so many of that class of patients, in the last softening, hopeless stage of consumption, made an imperfect trial of the remedy, that I would have regretted ever having published the monograph on "the sugar house cure for bronchial, consumptive and dyspeptic complaints," if additional evidence had not accumulated of its beneficial and curative effects, when fairly tried, in the class of cases in which I had recommended it, and of its doing no harm, but often giving temporary relief in some of the hopeless cases in which I had not advised it. But in those sugar houses where the bi-sulphate of lime is used to clarify the juice, the respiration of the vapor is hurtful. The negroes, who are very fond of the juice, and grow fat during the rolling season, will not drink it if the bi-sulphate of lime be used to clarify it.

The great reluctance of the planters to have sick strangers in their sugar houses, during the most busy season of the year, where there is seldom any room for them, is a great obstacle in the way of that method of treatment. The treatment by suction, over and around the chest, will often answer in place of inhalation to remove the irritation and obstruction in the bronchial tubes excluding the air from the cells.

Some degree of suction can be effected by applying compresses around the chest, wrung out of a solution of hydrochlorate of ammonia in water and alcohol, and covering the compresses with an air-tight bandage, made of oil-silk, between folds of cloth. The heat of the body generates a vapor, which being confined by the bandage, creates a partial and very imperfect vacuum, yet sufficient to cause some degree of suction over the entire surface covered by the bandage and the compresses. The compresses should be renewed several times a day—three times at least. They should not be too wet, or the heat of the body will not

cause the vapor to be generated. The compresses should be wrung almost dry, and should be made of coarse, porous linen cloth.

The solution of the hydrochlorate of ammonia in alcohol or vinegar, diluted with water, has long been used as a lotion for deeply seated inflammations, pains, sprains and bruises. The officinal lotion of the Pharmacopœia is too irritating to be used in the above manner. An ounce of the officinal lotion with water and alcohol, will be sufficiently strong, when added to a pint of cold water, to wet the compresses in. But if in addition to the suction, it be thought advisable to create counter-irritation by a crop of pustules on the skin, the compresses should be wrung out of a stronger solution and then covered with the oil-silk bandage. The eruption, however, will interfere too soon with the application of the bandage, and of course with the treatment by suction. The benefit, from the latter, is much greater than from counter-irritation. It has all the benficial effects of leeching or cupping, and is not liable to the objection of causing debility. As soon as the compresses are applied, the patient should exercise on horseback for two or three hours. A gentle horse and a slow traveling gait, are to be preferred to fast riding.

Something should be devised, suitable for each particular case, to awaken the observant faculties, to interest the mind with external objects, and to draw it out from inward contemplation into the field of some useful pursuit. Living for an object, or to effect some useful purpose, gives a power to the mechanism of respiration and the organic functions, which life without an object is deprived of. Hence, psychical influences, after all, are the most to be depended upon in the treatment and prevention of consumption.

Art. II.—*Researches into the Natural History of Cholera.* (Continued from the September No.) By Bennet Dowler, M. D.

The precursory or incipient symptoms of cholera, as debility and involuntary twitchings of the muscles, impaired appetite, meteorism, coolness and duskiness of the skin, copious alvine evacuations, quickness of the pulse and the like, are seldom alarming. The differential diagnosis of the whole group of these phenomena is often difficult to appreciate, or distinguish from kindred affections. The diagnostics of cholera are, therefore, usually taken from the advanced or grave form of that malady, attended with excessive purging, algidity, cramps, collapse.

Every physician conversant with cholera, must have observed, that with few exceptions, its natural tendency is deathward. Most physicians consider that to treat symptoms, as they appear, is all that can be done for the patient. Exceptions to this empirical method occur. Thus the algidity of cholera is not amenable to external heat, which is not only unsuccessful, but most repugnant to the patient, who has the subjective without the objective symptoms of fever; warm applications, warm water baths, or warm vapor baths do not restore the heat to the system generally, nor are they easily tolerated by the patient. Sinapisms, however, are probably useful, even though they may scarcely inflame or heat the skin. Are they not revulsive, (being painful) nevertheless?

Can calorifacient medicines reproduce the lost temperature in cholera? Certain medicinal agents can depress or exalt the animal heat under some circumstances. In *L'Union Médicale* for May 24, 1851, is an account of MM. Duméril, Demarquay et Lecointe's experiments, showing the modification of the animal temperature from the introduction of different therapeutic agents into the economy. These physicians associated themselves together for the purpose of making these experiments. M. Demarquay began the investigations as early as 1847. Their experiments were made on dogs. Cantharides administered in doses of 8.20 to 40 centigrammes, elevated the thermometer 2.1° in 6 hours: cannella 30 to 45 grammes, from 1.7° to 2.7°; ergot $\frac{8}{10}$ of a degree in 5 hours. Phosphorous, 10 to 20 centigrammes, caused a depression; strychnine almost no result. Large doses of emetics in 2 hours caused depressions of 2°; subsequently there was a rise of 1°. These degrees of the centigrade, indicate nearly double the temperature of the Fahrenheit scale, being as 1.8° to 1°.

Calorifacients act as such, if at all, through the absorbent and circulatory systems. In cases attended with the suspension or loss of the function of absorption, the action of these agents must be little or nothing.

Laudanum, or the salts of morphia and quinia dissolved in water or in diluted brandy or whisky, form an excellent enema in the early stage of cholera, which may be repeated, if necessary, after every copious evacuation. If this combination be retained, and the function of absorption be not lost, the cholera will generally be arrested, and the development of consecutive fever, which sometimes follows cholera, be prevented. The enema-treatment, as an auxiliary to that by the stomach, is of the utmost importance, because the general impairment or paralysis of the absorbents, renders it important that both extremes of the alimentary

canal should be appealed to as seats of medication, and the more so, because the failure may be greater in the stomach than in the large intestine, and *vice versa.*

Whether the tincture and salts of opium arrest serous discharges or choleraïc exosmosis upon the physical principle of a superior edosmotic relation is not very evident. Opiates doubtlessly diminish the exaggerated or morbidly increased peristaltic action of the bowels which characterizes dysentery, diarrhœa, and cholera. I have sometimes found the peristaltic action to persist for hours after death from the latter.

The remedial measures in cholera, concerning the efficacy of which there can be, in general, but little doubt, are few and simple indeed, being scarcely more than three or four, namely, opium, stimulants, water and frictions. Nevertheless, many other remedies are often useful. The preparations of opium, as laudanum or the salts of morphia, surpass all other remedies in the universality of their therapeutic efficacy when administered by skilful hands. The administration of opium or any other potent agent in cholera, is, however, attended with unusual difficulty, as to the strength and repetition of the dose. If the power of absorption be greatly impaired, in connection with frequent vomitings and purgings, the dose may be excessively, and under other conditions dangerously large, and may be often repeated without the toxical effects that might otherwise be expected.

Water, perhaps, should be reckoned as an important if not a principal remedy in the treatment of cholera, although it is often interdicted by the medical attendant, under the apprehension that it increases the tendency to vomit. The patient has an irrepressible desire for it, and this fact alone affords a presumption favorable to its employment. Theoretical considerations are also favorable to this instinctive indication; for, water, which is, perhaps, more readily absorbed than anything else, is adapted to supply the great loss of the watery part of the blood parted through the alimentary canal. How cold, soever, may be the surface, the subjective sensation of heat calls for cold or iced drinks. In wounds attended with rapid and large effusions of blood; in abortions, etc., attended by violent hæmorrhages, thirst becomes violent just as in cholera. In attempts to commit suicide, by which large emissions of blood have taken place, I have noticed that neither the wounds nor the disgust with life, could repress the demand for water. Upon the battle field, it is said, that the wounded, who have bled much, demand, above all things, water. In cholera, thirst constitutes the substance of the patient's misery or complainings.

The natural appetite for food and drinks should generally be gratified

during sickness. Ice, which has a better claim to a place in the Materia Medica than many articles already in it, was, in former times, not allowed to yellow fever patients by the faculty, and was prohibited by authority, the mayor of New Orleans having issued his proclamation closing all the ice-houses during an epidemic!

Friction is the most effectual means yet discovered for the removal of the grievous cramps which assail the exterior of the body and the limbs. The dense, knotty, painful masses of the muscular tissue, characterizing cramps, yield, in many cases, to this treatment, which the patient calls for instinctively, as he does for water when thirsty. This mechanical treatment of cramps, how inexplicable soever it may be, is, in many cases, attended with marked relief. Half a dozen of assistants may sometimes usefully employ themselves in allaying these muscular spasms.

In a speculative point of view, it may be supposed that the treatment of cholera by stimulants and narcotics, has perhaps, this disadvantage, namely, a tendency to produce an augmentation of hydrocarbon in the blood and the tissues at the very moment when these latter require the introduction and assimilation of oxygen, and the parting and elimination of carbonic acid from the economy. If, however, choleraïc discharges, exhaustion and cramps, be arrested and removed, the carbonization due, upon this theory, to medication and the disease itself, may be worked off as a natural consequence of the arrest of the malady, and the re-establishment of the functional activity of the organs.

Such speculative objections can have little or no weight as against any treatment which has been found advantageous, how empirical soever that may seem.

In no disease, as has been already said, is the dose of medicine so uncertain as in cholera, owing to the fact that absorption is greatly impaired, if totally arrested, particularly with regard to certain medicinal preparations. Even brandy, laudanum, solutions of morphia, camphor, etc., often produce little or no appreciable effect. It may be necessary, for this reason, to augment the quantity more than would be safe in any other malady. Herein lies one difficulty of medication, together with the necessity of vigilance and skill in the physician.

It has been proved that a comparatively empty state of the blood vessels, as when copious venesection has just been performed, generally favors the rapid absorption. Now this condition of absorption, though virtually produced by choleraïc discharges, does not accompany cholera; but if the pathological and physical exosmotic choleraïc current should suddenly be reversed for the endosmotic current or absorption, the

accumulated medicines in the stomach and bowels, may become very active, perhaps dangerous, nay poisonous.

The skill of the physician and the most appropriate remedy, must be unavailing in the treatment of cholera, when the physico-vital dynamics of the absorbent system are retrograde or altogether arrested. While there is life and even for a time after its extinction, absorption is probably never wholly lost, although it may be too feeble to be available in the treatment of the disease. The progress of modern research shows with a constantly accumulating force of evidence, that medicines for the most part, do not in the first instance act on the nervous periphery, and thence by sympathy upon the whole system, but primarily enter the circulation by absorption, assimilating rapidly with the blood, thereby medicating or affecting the economy. It has been proved by direct experiment that some medicines introduced into one jugular perform the circle of the system and appear in the opposite vein in a small fractional part of a minute. Not only the lacteals and lymphatics but the blood vessels themselves are concerned in this office.

The prevalent, and, perhaps, too exclusive physical theory of absorption or imbibition of medicinal and other substances which enter the circulation from the alimentary canal, together with the therapeutical proof extant showing that absorption is generally impossible, or at least very difficult and slow without solution; that solids introduced into the economy must first be dissolved before they can be taken up, all go to show that medicinal agents intended to remove cholera, should be thoroughly dissolved if possible before they are exhibited, water being the most absorbable vehicle or menstruum. Time being precious in this disease, medicinal agents should be prepared so that their action may be facilitated and speedy. Hence, upon this theory a watery solution of morphia should be preferred to its syrup, the tincture of opium to its powders or to pills, etc. Solids, as pills, have, nevertheless, one advantage over solutions, namely, they are not so readily vomited. Experimenters affirm that among liquids imbibition is retarded in proportion to their density; therefore, all unnecessary additions as sugar, gum, etc., should be avoided, as, upon this principle, they must prove barriers to immediate endosmosis or absorption.

It might be instructive, did the limits of this Journal permit, to refer to the British practice in treating cholera, first in India, and next in England, at the second invasion of 1848–9, and consequently after the experience in the latter country derived from the first epidemic.

Of the East India school, the most prominent representative at an early date, was Sir James Annesley, surgeon to the Madras General

Hospital—a voluminous writer upon the Diseases of India. He maintains that "bleeding is the sheet-anchor in the treatment of cholera;" he also recommends opium, camphor, ammonia, æther, and calomel; the latter in scruple doses.

The medical mind of England is supposed to have been represented at the Meetings of the Medical Society of London, in 1848 and 1849, on the treatment of cholera. Some of the principal physicians of England, whose opinions are reported in the London Lancet, may thus be summed up: Dr. Clutterbuck (since deceased) maintained that he had no knowledge of any satisfactory method of curing the disease except that which he called palliating symptoms as they occurred, trusting to time for the result, warming the patient if cold, stimulating with brandy, ammonia, etc., depleting if there was vascular excitement.

Dr. Stewart had no faith in anything but tartar emetic; 3 grains for a dose, to be repeated in half an hour.

Dr. Chowne considered cold-water [affusions?] towards the close of the disease preferable to any other treatment. Mr. Herd coincided in the cold-water treatment, affirming that it was not followed by the consecutive fever which killed so many patients, treated with calomel and opium, when the cholera prevailed on a former occasion; he is in favor of mustard emetics, warmth, sinapisms; 2 grs. acet. plumb., with half gr. opium, every two hours; opposes calomel.

Mr. Pilcher advocated the saline treatment with the oxymuriate of potassa and opium, which seemed to arrest purging and restore the secretion of the kidneys. When urine was secreted, the patient generally did well.

Jos. Ayre, M. D., of Hull, England, asserts "that the present mortality from cholera is three deaths for every four persons attacked—a mortality that shows that only the milder cases can recover, and which would recover if left unaided; and that no remedy is at present in universal use that can subdue the pulseless collapse." He says this ought not to be. He cures even collapse without the aid of stimulants or any auxiliary, by giving calomel alone, "one or two grains with a drop or or two of laudanum to assist the stomach to retain it, every five or ten minutes; this is my sole remedy in the stage of collapse." One of his patients took 580 grs.; one of his friends gave another 800 grs.; both were cured without any ptyalism. "It will be found that if calomel were not the efficient instrument for removing the collapse, it was removed spontaneously, for no other agent was employed." He found from his experience and that of his friends, "who followed the same course of treatment, that there was no ground for despair in the most

unpromising cases of collapse, when the attendants did their duty; and it occurred to us all to witness recoveries under such circumstances of hopelessness, as to take from us nearly all anxiety about the result of ordinary cases of collapse." He treated 219 cases. These favorable results have never been witnessed in America.

C. Searle, M. D., late of the East India Madras Establishment, says that he has "had as much, if not more, experience in the treatment of this disease than any other individual in the kingdom;" he has written a work on cholera, dysentery and fever; and affirms that, "If any single remedy merits the name of specific in the cure of disease, calomel is that remedy in cholera." He denounces opium, which, according to him, annuls or supersedes the effect of calomel, torpifying, paralizing and arresting secretion. The chalk-mixture and opiates he calls "fiddle-faddle!" He gives an emetic, to be followed by 6 grs. of calomel, putting it on the tongue with salt; the latter to excite a flow of saliva in which to swallow the calomel. The calomel is given 1 to 20 grs. every hour. Mustard is applied over the stomach. When urine and bilious stools occur, he gives a dose of castor oil to prevent salivation.

The mercurial treatment of cholera in the East, and in England, was adopted very generally in America, with, in some districts, a freer use of calomel than had, perhaps, ever been known before. The late distinguished Professor Cooke, of Louisville, who published in the Transylvania Medical Journal his experiences in the mercurial treatment of cholera in the year 1832, may be named as the ablest of the ultra advocates of that method. The following synopsis of the treatment of fifty cholera cases, with the loss of but three, is submitted to the reader as an instructive example in therapeutical history: In case 7 three ounces of calomel in as many doses were given; in case 8 the same; in case 9 half an ounce, which was repeated several times during three days; in case 10 half an ounce; subsequently an ounce: all recovered. Of 14 cases, 6 took half an ounce each, 2 an ounce each, and the residue each a tablespoonful, all recovering. Mr. B. (case 28) took 4 tablespoonfuls, (probably six ounces); case 29 took a tablespoonful every 6 hours until he had taken seven, (probably $10\frac{1}{2}$ ounces); in case 30 three tablespoonfuls were given, (about $4\frac{1}{2}$ ounces.)

For a time, Dr. Cooke's opinions in favor of mercury as the remedy for fevers and cholera, swayed the medical mind, particularly in the south and west, to an almost unparalleled degree. As a teacher, a writer, a practitioner, and a conscientious man, he doubtlessly acted from a deep sense of duty.

Without making at present any further retrospective research into the various methods of treating cholera, it may be proper to conclude this paper, now much extended, by a few remarks upon the good and bad effects of mercurialism, together with a synopsis of the treatment adopted by the able surgeons of the U. S. Army, and reported in a quarto volume, (1856) compiled by Assistant-Surgeon Coolidge, U.S.A. under the direction of Brigadier Gen. Thomas Lawson, Surg.-General, U. S. A.

With regard to the curative action of mercury in this disease, there is, doubtlessly, much inconsequential reasoning, more particularly in reference to its constitutional or salivant action. In severe affections of the bowels, such as dysentery, diarrhœa, and cholera, this medicine is frequently not absorbed, or if absorbed, it does not salivate until the malady begins to subside, when its constitutional action is apt to be developed, which though it may not be excessive or dangerous, is detrimental, annoying, and even preventive of a speedy convalescence. As a general rule, salivation takes place with greater celerity in health and during convalescence, than during the active, increasing and persistent morbid action of fevers and bowel affections. Among the curiosities of medical experience, its suspended or postponed salivary action, sometimes witnessed, is not the least remarkable. Thus a small mercurial dose, administered during the persistent, active stage of disease, may produce no appreciable effect for one, two, or three weeks, when simultaneously with convalescence, salivation may set in and continue for weeks. Salivation is not desirable in itself, but merely as an evidence that the economy is under the influence of mercury.

In dysentery, I have known a dose of blue mass to remain apparently dormant one or two weeks, when, with the appearance of convalescence, it produced mercurial salivation which persisted six weeks. In cholera, I have known six grains of calomel (given with other medicines) to produce, simultaneously with recovery, a salivation which continued from one to two months. Few medicines are so valuable, and at the same time, so eccentric and uncontrollable as mercury. A severe salivation is sometimes dangerous, and at best is a serious and disgusting malady. It is, therefore, the duty of the physician to study how not to give it—how to avoid it, as well as how and when he is bound to give it to his patient notwithstanding its occasional ill-effects, which, fortunately, are infrequent.

The utility of mercury in the treatment of cholera is probably less than mercurialists suppose. The insolubility of mercury, and its slow action, in connection with the pervading paralysis of the absorbent sys-

tem in cholera, and the rapid march of that malady, seem little favorable to its action anterior to the termination of the disease in recovery, or death.

The following is one of many cases, in which, even opiates and stimulants were taken without having produced any of the appreciable or marked effects usually due to their absorption: 1850, Nov. 28, 7, P. M.; Saw Mr. W., mate of the ship Thomas Church; aged 32; Englishman; resident five days; he attended to business until 4, P. M., when vomiting, purging, cramps and algidity took place; has taken within three hours before I saw him, (as the witnesses say) three teaspoonfuls of laudanum and as many drinks of brandy. His pulse is almost imperceptible; neither intoxication nor narcotism is developed; retains his senses. Died the same night. Can any one believe, in such cases, that calomel, naturally slow in its action, could save the patient, when neither the tincture of opium nor brandy appeared to have been absorbed?

Dr. Headland, in his work on the Action of Medicines, (*passim*) maintains at length, as fundamental, that neither blue mass, calomel, nor any other medicinal agent insoluble in water or the gastric fluids, can enter the circulation, without which, it cannot prove remedial. A few remedial agents, in rare instances, may act locally without having been thus absorbed into the circulation. In reference to calomel and blue mass, Dr. Headland says: "From the great similarity that exists between the action of these two, it seems likely that they are reduced by the gastric fluid to the same condition. Both must be rendered soluble before they can be absorbed. Blue-pill contains the metal itself in finely divided state, as well as a small quantity of the oxide. Calomel is an insoluble chloride of mercury."

The suppression of the urinary secretion is, in this disease, in grave cases, very common; for which diuretics are sometimes given, after which, not in consequence of which, urine is secreted, the flow of urine being due to the abatement of the disease and the resumption of the normal function. The same reasoning applies to the method of treatment by large doses of calomel, itself insoluble, and, given too, when absorption is reduced to zero. It is, then, but a foreign body in the stomach and intestines. But in this case, should the normal functions be resumed, this medicine is absorbed, and hence comes into action, and should it not produce a salivation, it may prove very useful in accelerating several secretions and excretions required by the economy for its depuration, while, at the same time, it may prevent the consecutive or febrile symptoms which sometimes follow those of cholera proper. No

one can foresee nor control the action of mercury in such cases should that action be excessive.

The prejudices against mercury are, in many respects, wholly unfounded in regard to its supposed lodgment in the bones, and its supposed deterioration of the constitution. It may kill, or produce mortification, etc., by its temporary constitutional and local action. It may retard recovery. But that it breaks up the constitution or leaves chronic diseases as its sequelæ, may be doubted. On the contrary, it often has incidentally eradicated serious chronic, preëxisting maladies when given for an acute, existing one. It occasionally creates an increased and permanent susceptibility to salivation, not originally inherent in the individual constitution, so much so, that it cannot be given in the smallest doses without incurring the fearful risk of prolonged mercurialization. A hereditary or induced idiosyncrasy of this kind tends to restrict the use of mercury, and to render its administration a source of anxiety and embarrassment to a prudent physician. A bad salivation will bring more censure to the physician than the death of his patient from an uncured disease.

As already indicated, a synopsis of the treatment of cholera recommended by the army surgeons, as reported in the Medical Statistics of the Army, (1856) will conclude this paper.

Surgeon Henry A. Stinneche, in his report on the Medical Topography and Diseases of Fort Monroe, recommends, in cholera, small portions of calomel, opium, camphor, and ipecac, in pills, every third or fourth hour; also stimulants, cordials, etc. Should these remedies prove inadequate in use, warm stimulating cataplasms of mustard and cayenne pepper, or epispastics to the abdomen; frictions with stimulating liniments; increase the internal stimuli and opiates; draughts of aromatic confection, tinct. opii, æther, or Hoffman's anodyne liquor, mint or cinnamon water; nutrient enemata: "In no condition of disease is the practical application of the proverb, 'give strong drink unto him that is ready to perish,' more appropriate. Besides such agents as may be embraced in this general term, we know of but few."

Surgeon Finley gives calomel, camphor, and quinine; creosote; ice.

Assistant-Surgeon B. M. Byrne, gives "calomel the main remedy, in scruple and half drachm doses, combined with ten grains of camphor, and repeated after each evacuation until bile appears in the stools. In some instances, more than 300 grains had been exhibited before this result was obtained; but in every instance, except one, in which bile was restored to the passages, the patient convalesced. As auxiliaries

to this treatment, dry heat, occasional opiates, carbonate of ammonia, brandy, mercurial frictions, mustard plasters, etc., were employed."

In his report dated at San Francisco, California, Sept. 14, 1852, Surgeon Charles S. Tripler says of the treatment in cholera: "I think the free exhibition of brandy with capsicum and chloride sodium was about as successful as anything. We found the acetas plumbi, in doses of 5 to 10 grains, a valuable means of restraining the diarrhœa; I feel sure that many cases were relieved by it that would have terminated in malignant cholera without speedy relief. Mustard and bottles of hot water, with frictions of the surface externally; calomel, camphor, and quinine internally, were freely used. But as I have already remarked, and as usually happens in severe epidemics, the chances are that the cases first attacked will die, and that the ratio of the mortality will diminish with the duration of the epidemic. In this epidemic we lost about 80 men."

Dr. Tripler's regiment (4th infantry, 8 companies) embarked at New York, July 5th, 1852, for Aspinwall, New Granada, and California. About two weeks after embarkation, while yet on the Isthmus of Panama, cholera broke out among these troops, among whom, as above stated by Dr. Tripler, 80 were cut off. The troops sailed August 8th, from Panama for their destination, after which but one death occurred, and that was caused by "the secondary fever of cholera."

(*To be continued.*)

ART. III.—*On the use of Iodide of Potassium in the Treatment of Leucorrhœa by Injections.* Illustrated by cases: By JOSEPH B. PAYNE, M.D., Magnolia, Arkansas.

THE wise man said, "There is nothing new under the sun," and the saying applied to the practice of medicine in the present age, can admit of no refutation, and indeed of but little opposition.

Most of the remedies or curative agents lately brought into notice, more especially those which are published to the world as new discoveries, may be proved to have been used in very remote periods; and many too, have been well known among the teachers of medicine, in the very infancy of the art. The present age, perhaps, more than any other, has been characterized by the successful diligence and zeal which it has displayed in researches. The efforts made in the various arts and

sciences, have been often rewarded by great and important discoveries, and none of the branches of knowledge can boast of more successful improvements than those which have been connected with medical inquiries. While concession to the truth of this opinion must be very generally acknowledged, it will also be allowed, the assiduity and ardor of pursuit after novelties, especially in the healing art, had been almost every where so exclusively directed to recent or modern innovations in practical as well as theoretical principles, that much very important, though ancient medical skill communicated by the writings of an early age, has been disregarded, or ignorantly confounded with pretended new discoveries; the new medical author or practitioner claiming the merit and honor, of first introducing as a beneficial novelty, some plan or method well known to his predecessors, and recorded in works yet extant, and of easy attainment. It is certain that many important articles of the materia medica, apparently of opposite tendency to one another, are judiciously used in morbid affections. To account satisfactorily for this fact, theory alone will not suffice, but experience will, in such instances, guide the physician's conduct, without regard to any theory; and the beneficial result of the use of seemingly opposite medicines, will often do away the extravagant respect so uniformly shown to theoretical reasoning in the practice of young physicians.

But my present object being to awaken the attention of my medical brethren to an article which I deem of greater importance and efficacy, and possessed of more valuable properties than are now generally ascribed to it. This remedy is the iodide of potassium.

I will now give the history of three cases which came under my care: although they may be imperfect in many particulars, yet I hope they are of sufficient minuteness and correctness to occupy the sphere they are intended for, in the mind's eye of the reader.

In the spring of 1856, Jane, a negress of Mr. E. S. Miller, *æt.* 30 years, of a leucophlegmatic temperament, came under my treatment. Two years ago she was attacked with dysmenorrhœa, followed soon after by prolapsus uteri, with a leucorrhœal discharge. When she came under my care the leucorrhœal discharge was of more than an ordinary quantity usually met with in such cases. When the discharge came in contact with the external parts, it produced excoriation. Previous to the appearance of the catamenia, the uterus would sink low into the pelvis; frequently making its exit beyond the labia externa. The catamenia was of the usual character and quantity for the first two or three days; then it would change its form in regard to quantity, and assume that of menorrhagia: never yielding but to the action of remedies.

Such is a general history of the above case when it came under my care.

My first object being to relieve the dysmenorrhœa and prolapsus of the uterus, which I accomplished after "so long a time," but with no diminution of the leucorrhœal discharge. I followed the usual course of treatment for its relief, but with no avail. Relying solely on an alterative course of treatment for its cure, my mind naturally led to the use of the iodide of potassium. I reasoned with myself thus: If the iodide of potassium is such an efficient alterative when taken by the mouth and addressed to the constitution generally, would its action not be more potent, if brought within direct contact with the diseased parts? Acting upon these premises, I commenced the use of the iodide potassium by injections per vaginam; and, much to my surprise, (though of an agreeable character,) the discharge made a speedy surrender. It has not made its reäppearance now, nearly a year since.

1857. Mrs. S., *æt.* about 21 years, of a sanguine temperament; has suffered much since her last confinement (six months ago) with leucorrhœa, of an ordinary character. Ordered a solution of iodide potassium by injections three or four times a day. The discharge was soon relieved.

Mrs. C., *æt.* about 28 years; leucophlegmatic temperament. Confined about seven weeks since with her fourth child. Suffered much after her accouchment with ovaritis. Leucorrhœal discharge somewhat profuse, and of a thin, white appearance. Ordered iodide potassium by injections. Discharge checked on the fourth or fifth day.

The quantity of iodide of potassium used was as follows: ℥iss to a half pint of aqua puræ.

Magnolia, Ark., August, 1857.

Art. IV.—*Scarlatina Cases:* By Yelverton B. Egan, M. D.

Jan. 15, 1856. Mary Anne Dodd, ætat. 15; sick five days. The tongue and internal fauces of a florid color; the external fauces much swollen; the eyes are suffused, the conjunctivæ of both unusually vascular. There is intense headache, with occasional delirium; a dull efflorescence pervades the entire surface; the respirations count 35 in the minute; pulse 140, small; bowels open from medicine given previous to my seeing her. Applicentur hirudines octo faucibus externis et postea imponatur cataplasma calidum emolliens. Abradatur capillitiam.

Jan. 16. Head relieved; two copious motions; efflorescence not so great; coughs much; the internal fauces are much swollen, and of a dark livid color; pulse 130, soft. Ordered tepid sponging of the general surface, to be repeated every hour during the day. Iterum applic. hirudines octo faucibus externis—postea applic. cataplas. vesicat. pectori; haustus effervescens subinde.

Jan. 17. Some sleep; pulse 135; breathing oppressed and hurried; wash as on yesterday; throat improved; headache gone; the leeches did well; the intellect at present is clear; bowels open; cough severe; thirst urgent. Applic. vesicator. inter scapulas. ℞. Antim. tart. gr. ii; infus ulmi fulvæ, f℥ viii; Sumat ℥ii, urgente tusse.

℞. Hydrarg. chlorid. mit. gr. vi; pulv. ipecac. gr. ii; pulv. antimonialis gr. vi. M. Divide into six parts; one to be taken every three hours; tepid sponging.

Jan. 18. Improved. Continue the tartar emetic mixture.

This patient progressively improved, and was convalescent on the 9th of February.

This case affords evidence of congestion in the brain, which state was neglected for the first days of the girl's illness; the pulse and respirations having harmonized, augured favorably.

Case 2. Feb. 2, 1857. John Dillon, ætat. four years. The external fauces are much swollen; the internal florid; the entire surface of the body is covered with an efflorescence; the papillæ of the tongue are to be seen projecting through a thick fur on that organ; skin pungent and harsh to the feel; pulse 130; respirations 35. ℞. Pulv. ipecac.; ext. scillæ ʒ i; water f℥ i: one half to be taken immediately, and the remainder in four hours afterwards, unless vomiting should intervene. Applicentur hirudines sex faucibus externis; to be succeeded by a warm poultice of flaxseed. To have a hot bath in the evening, and to take a tablespoonful of the infusion of senna every two hours till it operates after the vomiting shall have ceased.

Feb. 3. Vomited freely; leeches did well; rash more developed; tongue cleaning; the external fauces much swollen. Continue the poultice; nitrate of silver in solution to be applied to the internal fauces.

Feb. 4. The tongue is now clean and florid, the fur having disappeared; the fauces continue swollen; the efflorescense is much less on the surface; pulse 110, soft. Tepid sponging. Iterum applic. hirundines sex faucibus externis; continue the infusion of senna.

Feb. 5. Going on well.

Feb. 7. Convalescent.

CASE 3. Feb. 24, 1857. William Dillon, ætat. 11; brother of the preceding. Fourth day. Efflorescence on the trunk and lower extremities; tongue florid; papillæ to be seen in some parts pointing through a fur in the centre of this organ; the throat internally and externally tumefied: the former especially, from submucous infiltration; bowels constipated; skin hot and harsh to the feel; pulse 135; soft. To have a warm bath in the evening. Applic. hirud. decem faucibus externus; to be succeeded by a flaxseed poultice. Head to be shaved. To take a dose of castor oil; to have the throat occasionally brushed with solution of nitrate of silver.

Feb. 25. Bowels open; pulse 130, soft. Continue the poultice and nit. sil. ℞. Hyd. chlorid. mit. gr. viii; pulv. antimon. gr. vi; zingib. gr. ii. Make four powders; take one every third hour.

Feb. 26th. The throat is much improved; skin dry, but its temperature has fallen; pulse 120, soft; tongue florid; bowels not open. To have an enema in the evening; continue the powders and poultice: tepid sponging, occasionally.

Feb. 27. Doing well.

Feb. 28. Convalescent.

CASE 4. Feb. 15, 1857. Lawrence Dillon, ætat. 19; a third brother. Complains of sore throat; no efflorescence of the skin; pulse 110, full and bounding; tongue florid; the soft palate is much swollen; there is exquisite headache, with pain extending along the spinal column; thirst urgent; bowels constipated; skin pungently hot. Ordered tepid sponging of the body; venesectio ad f℥ xii; applic. hirudines xii, faucibus externis; with the flaxseed poultice afterwards. ℞. Pulv. ipecac ℈ i; tart. emetici gr. i; aquæ f℥ ii. M. St. statim. After the emetic to have purging mixture of sulphate of magnesia with the tartar emetic.

Feb. 16. Blood lazy; pulse 84, soft; throat better; tongue still florid; vomited well; bowels open; much thirst; surface pungently hot. Continue tepid sponging; to have an effervescing draught; the head to be shaved.

Feb. 17. Continues to improve; distressed by cough. ℞. Tart. emetici gr. ii; infus. ulmi fulvæ f℥ vii. M. Take a tablespoonful when the cough is troublesome.

Feb. 18. Cough continues; pulse 94, soft and full; sonorous râle audible over the antero-superior part of the chest, on the right side; bowels constipated. Applic. hirudines xii thoraci; pil. hydrarg. c. colocynth. ii; with purging mixture as before.

Feb. 19. Cough better; pulse 85, soft; the throat much improved.

Feb. 22. Convalescent.

CASE 5. Feb. 24, 1857. Julia Bishop, ætat. 30; unmarried. Fourth day. The entire of the body is covered with a deep, lobster-colored efflorescence; there is considerable tumefaction of the external parts, about the throat; internally it is also much swollen; headache, with intolerance of light; the eyes are much suffused; pulse 130, full; tongue florid at the apex and sides, furred in the centre; the elevated papillæ can be seen protruding; there is much thirst; extreme præcordial anxiety. Head to be shaved and sponged; applic. hirudines xvi faucibus externis; poultice afterwards; haustus emeticus. Pil. purgantis 2 et mist. sulph. magnesiæ, etc., after the emetic has operated.

Feb. 25. Much effusion of blood from the leech bites; the emetico-cathartics have acted well; she states that she can swallow better; the poultice over the leech bites has given her much comfort; headache continues; pulse averages 120. Poultice to be continued; tepid sponging to the surface; appl. hirudines xii temporibus. ℞. Hyd. chlor. mit. gr. viii; pulv. antimon. gr. vi. M. Ft. pil. iv. Take one every 3 hours.

Feb. 26. Head much relieved; throat externally and internally improved; pulse 110, soft; bowels constipated. Poultice to be continued; the throat to be brushed with nit. silv. solution; continue the pills and take a dose of oil.

Feb. 27. Doing well.

ART. V.—*Statistical Researches on the ratio of Mortality from Pulmonary Consumption in the Northern and Southern States, as proved by the Mortality Statistics of the Seventh Census of the United States, etc.*, (1850): By BENNET DOWLER, M. D.*

CONSUMPTION, the great destroyer of human life, which occupies an unusual space in the present number of this Journal, fills at the present time a large space in the medical mind of all civilized countries. A great revolution (revolutions seldom go backward) is now taking place in regard to the beneficial influence of climate, particularly as to the advantages of a hot climate in either arresting or in preventing consumption. The conclusions recently arrived at from statistical data are adverse to the opinions formerly entertained as to the curative or pro-

* This paper, written hastily, in fragments, was sent to press as an introduction to the extended article on consumption in the department of the Journal on the Progress of Medicine. It has grown to an unexpected length, and has been transferred to the department of Original Communications, being, as is supposed, an original application of the facts developed by the last Census, to show the distribution of consumption in the Republic.

phylactive influences of tropical and warm climates. It is to be borne in mind that the apparently exact data which have been taken from the army records, are of course, restricted to a particular class, that is soldiers, who often vibrate from climate to climate, all the while encountering the privations and exposures ever attendant upon camp-life. Fevers, dysentery and diarrhœa generally prevail among this migratory class to a greater extent than among the natives or acclimated population, and even pulmonary affections other than tubercular consumption, might be supposed to belong to the same category.

The influence of the physical agents, as cold, etc., in connection with insufficient clothing, diet and comforts, is, when excessive, doubtlessly calculated to produce pulmonary affections among civilians as well as soldiers. Thus Mr. Bancroft, the historian, says that in January, 1621, "when the Pilgrims began to build houses at New Plymouth, such had been their exposure, though only a few days in the climate, that one half were wasting away with consumptions and lung fevers. It was not until spring had far advanced, that the mortality began to cease; the living had been scarce able to bury the dead—the well to take care of the sick."—(i, 313, 314.)

The prevalent opinion against warm and for cold climates can only be accepted provisionally until further research shall have determined its validity or falsity definitively.

The following summary taken from the Medical Statistics of the U. S. Army, recently compiled by Dr. Coolidge, U. S. A., 1856, (pp. 496–7,) is of great interest in regard to the climatic influences upon the origin and development of phthisis pulmonalis in the army.

"With the exception of West Point, the lowest ratio of cases of consumption occurs in New Mexico, being only 1.3 per 1,000; and the highest in the South Atlantic region, where it is 9.2 per 1,000. It will also be noticed that the regions designated as the South Interior East, and Gulf coast of Florida, give the next highest proportions, being respectively 7.2 and 6.9 per 1,000 of mean strength. The ratios for these three regions, and also those for California, are higher than for any of the regions in the northern division. A careful examination of the consolidated temperature, rain, and weather tables, in connection with the statistics relative to consumption, will, it is believed, lead to the following conclusions: *First.* That temperature considered by itself, does not exert that marked controlling influence upon the development or progress of phthisis which has been attributed to it. If a high range of temperature were favorable to the consumptive, the South Atlantic region, the South Interior East, and the Gulf coast of Florida,

should exhibit a lower ratio than the colder regions of the north and the north-west, whereas the contrary obtains; and again, if a high range of temperature were the controlling element in causing an increased ratio of this disease in the two southern regions above named, we ought *not* to find a lower proportion of cases in Texas, where the temperature is higher, nor in the South Interior West, where it is nearly the same as in the South Atlantic region. *Second.* That the most important atmospherical condition for a consumptive is DRYNESS. An examination of the rain tables will serve in part to elucidate this position, and in part only, for the total annual precipitation in rain and snow may be equal in two or more places, and yet the average condition of the air as respects moisture—the dew-point—may widely differ. It is impossible to represent all these distinctive features by statistical tables, but the fact has been forcibly impressed upon the compiler during the minute examinations necessary to the preparation of this report. *Third.* Next to dryness in importance is an EQUABLE temperature—a temperature uniform for long periods, and not disturbed by sudden or frequent changes. An uniformly *low* temperature is much to be preferred to an uniformly *high* temperature. The former exerts a tonic and stimulating effect upon the general system, while the latter produces general debility and nervous exhaustion. The worst possible climate for a consumptive, is one with long continued high temperature and a high dew-point."

Dr. Coolidge supports his deductions by the "Statistical Reports on the Sickness, Mortality, and Invaliding in the British Army," showing the amount and ratio of cases of consumption at different stations occupied by British troops:

Station.	Mean Strength.	Number Treated.	Deaths.	Ratio of cases per 1,000 of m'n strength.
Gibraltar,	33,131	176	116	5.3
Malta,	21.172	129	91	6.0
Bermuda,	11,224	100	54	8.9
Nova Scotia and New Brunswick,	26.806	149	111	5.5
Canada,	90,456	524	327	5.7

Judging from the Army Statistics, it would appear that everywhere within the vast territories of the United States, the Indian race wheresoever distributed—whether in the north or south—whether to the east or west of the Rocky Mountains—suffers severely from tubercular consumption, and other pulmonary affections, and also, from scrofula. The hardships of savage life as well as the hardships of camp life among civilized nations seem either to cause, or to be attended with, a high comparative ratio of mortality. A bad or insufficient diet as well as

bad air and insufficient ventilation, must be considered among all people, and, perhaps, in every climate, either as direct or indirect causes of consumption. Be the climate hot or cold, humid or dry, neither savages, soldiers, nor any single class can be a reliable criterion for determining the inherent curative or morbific influences of climate upon the aggregate population of a country.

Hence a certain degree of distrust inheres in the entire statistical history of the army reports among all nations as types of climatic influences in regard to other classes. It were easy to quote authorities adverse to army reports, particularly in reference to consumption. In the National Cyclopædia (London, 1850, vol. ix, 548,) it is asserted that "in England and Wales, according to the reports of the Registrar-General of Births, Deaths and Marriages, the mortality is 19.55 per cent. of the total number of deaths, or 3.82 annually out of 1,000 living. In France it is about the same. On the eastern frontiers of the Cape of Good Hope, where the atmospheric vicissitudes are sudden and great, the thermometer in summer sometimes varying, in the course of a few hours, from 110° to 64°, and in winter from 75° to 32°, it is only $3\frac{1}{2}$" [per cent. of the total mortality]. "The natives of some tropical countries seem so little subject to diseases of the lungs, that among 74,850 native troops serving in the Madras presidency, the deaths by every description of disease of the lungs, did not on an average of five years exceed one per 1,000."

It is not intended in this preliminary sketch (which will be followed by a collection of practical papers on consumption,) to endorse either cold or hot climates as prophylactic or curative of phthisis; but to suggest the propriety of distrusting for the present the military statistics condemnatory of warm climates as being worse than the cold for consumptives.

Dr. W. H. Yates, in his work on Egypt, (2 vols., Lond., 1843,) says of that hot country, (nearly in the latitude of Louisiana,) that persons, who, like himself, have sojourned in Egypt, after being declared consumptives, "have not only recovered a certain degree of health, but are alive now, and have been enabled to return to Europe."—i. 141.

Sidney Smith maintained that in one particular, the oath of no Scotchman can be believed, namely, concerning the climate of Scotland. While British, French, and American statisticians, chiefly of the army school, are at present mustering their serried columns of figures to prove that warm climates are injurious or at least of no benefit to consumptives, it may not be amiss to pause and reconsider the matter before accepting these conclusions definitively.

With regard to this Republic, it is proposed to refer, at present, to the official statistics of the Seventh Census, which gives the deaths for one year. The mortality statistics, taken at the same time the census was taken, and compiled by Mr. DeBow, superintendent of the census, give for the year ending June 1, 1850, the aggregate deaths in the United States, at 323,023, of which number 54,800 died of diseases of the respiratory organs, including, of course, consumption. Diseases of the respiratory system, therefore, form nearly one-sixth of the total mortality or one in 5.894+. The deaths from consumption alone amounted to 33,516, or one in 9.636+ of the whole mortality.

The first State in the census list, is Alabama, in which the deaths amounted to 9,091; consumption giving not one to 25 (25.11+), against one in 9.636+ in the whole Republic.

The deaths in Louisiana, 11,956, of which 641 were from consumption, give a little over one in 19, being not half as great as the general average, and nearly five times less than some of the northern States.

The deaths in Maine reached 7,584; consumption 1,702, or nearly one in four, or 4.45. Now compare Maine with any of the southern States, say Georgia. The total mortality of Georgia reaches 9,925; consumption being 279, or nearly one in 36 (35.57+) of the whole. About nine times less!

The total deaths in Massachusetts, 19,404, give for consumption 3,426, or nearly one-fifth, or one in 5.37+.

The mortality of the year above mentioned, reached in South Carolina 8,047, of which 267, a little over one in 30, were from consumption.

These somewhat troublesome calculations might be extended, did time permit. Several southern and northern States taken at random afford results, as will be seen, most favorable to the southern States, so favorable, indeed, as to surprise the writer; and nothing but an official census, in the taking of which there can be no motive to deceive, could induce him to view these numerical results as at all probable.

Consumption gives a ratio of deaths, compared to the whole mortality, about eight or nine times higher in Maine than in Georgia! Massachusetts nearly four times more than Louisiana—five times more than Alabama—seven times more than South Carolina!

Dr. Coolidge's fellow officers and soldiers—M. Rochard's countrymen, and Victoria's subjects, may or may not contract phthisis in warm climates; but the civil population of the southern States, both white and black, are more fortunate in this respect than their northern neighbors.

Since the above pages were sent to press, the following data have been added: Total mortality in the State of Mississippi, 8,721; consumption 332, that is not one in 26¼, or one in 26.27+.

Total deaths in Connecticut 5,781; consumption 968, more than one in 6 or one in 5.97+.

Total deaths in Arkansas 3,021; consumption 132, nearly one in 23, or one in 22.88+.

Total deaths in Vermont 3,129; consumption 751, about one in 4, or one in 4.1+.

New Hampshire, total 4,231; consumption 924, or one in 4½ nearly, or one in 4.57+. North Carolina, total 10,165; consumption 562, or one in 18 nearly. New York City, total 11,883; consumption 1,819, or one in 6½. New Orleans, total 4,312; consumption 362, or one in 11.35+.

New Jersey, total deaths 6,865; consumption 915, one in 7½, or one in 7.5+.

Florida, total deaths 931; consumption 43, nearly one in 22, or one in 21.65+.

The official census of Boston for five years, ending with 1854, compiled by Dr. Curtis, shows an aggregate mortality of 19,983, for that period; consumption having contributed 3,421; that is more than one in 6, or one in 5.84+. By adding pneumonia, 1,108, to consumption, these maladies give nearly one-fourth of the total mortality.

From the official Registration Report of Rhode Island for 1855, (pages 63 to 66) it appears that in every hundred deaths in that State, 21.23 are caused by consumption, the city of Providence having given for a period of fifteen years a still higher ratio, namely, 22.11, or nearly one-fourth. Diseases of the respiratory system, throughout the State, caused in three years and seven months 1342 deaths, or 26.68 per cent. of the whole mortality. The mortality from consumption in the colored population in 1855, amounted to 32.47 per cent. of all the deaths, and 40.26 per cent. for all fatal pulmonary maladies.

The total number of deaths in Texas, for the year ending June 1, 1850, was 3,057; consumption gave 112, about one in 27¼, or one in 27.29+.

These data, derived from nearly twenty-four millions of people, having all the same undeviating significance—always favorable to the South, and constantly against the North as it relates to consumption, outweigh all the military statistics extant; at least the statistics of the handful of soldiers constituting the army of this Republic, cannot invalidate the climatic and vital statistics of more than twenty-three

millions of people, occupying a vast geographical range of latitude, longitude, altitude, and varied medical topography.

The mortality statistics of the U. S. Census, makes the case far worse for the South, as to consumption, than the reality warrants; because, the popular opinion in favor of the South as a residence for consumptives, sends a vast number of such patients to the southern States, swelling the bills of mortality, while the South rarely, if ever, sends a consumptive to the North for the benefit of its climate.

It will be found, according to the mortality statistics of the Seventh Census, the most extensive and reliable evidence extant, that the intensity of consumption diminishes inversely with the squares of the distance from the northern littoral of the United States.

It may, however, be thought, that what the South gains in the prevention of consumption, it loses by an excessive mortality from yellow fever and other diseases. Here, again, the mortality statistics of the Seventh Census, eliminates a result little expected, namely, that taking the slave-holding States as the limits of the South, and the non-slave-holding States as the limits of the North, the ratio of deaths to the number of the people is greater in the North than in the South.

Since the above mentioned data were in type, though not printed off in the forms of the Journal, the following documents were received through the postoffice. They are subjoined with a view to elicit the truth in regard to the geographical and climatic predilections of consumption—questions, compared to which, cholera and yellow fever sink into insignificance, seeing that consumption sweeps into the tomb from one-fourth to one-fifth of the population in some districts, its victims being generally in the prime of life.

If Maine, for instance, loses nine times more than Georgia in proportion to the whole mortality, life insurance, life itself, and the material interests of property and of the population, as well as the prophylactic and curative influences of climate become topics of permanent importance, and the well being of society demands that these things should be known as a guide to conduct.

NEW ORLEANS, Sept. 26, 1857.

Mr. Editor: A few days since I accidentally came into possesion of a Boston paper, which contained the enclosed publication, written in reply, as it states, to inquiries on "consumption," for some Life Insurance Company at the north, by our fellow-citizen, Dr. E. H. Barton.

I trust that you will give publicity to this paragraph in your "Journal," as no doubt the perusal of the strange doctrinal assumptions which it sets forth, dogmatically—and very remarkable statistical inferences

which are so cooly asserted, will be quite as novel and instructive to many of his medical *confrères* in this city as it is to myself.

But in truth, from the high position which Dr. Barton claims for himself in medical science, and also, in medical literature, as well as the importance which is given to it by the editorial comment preceding it, it requires more than a mere passing notice of this kind. The investigation of the soundness or unsoundness of the principles and doctrines contained—the truth of the real or imaginary statistics assumed, I will leave to your ability and well known critical acumen to perform.

Yours very truly,

* * * * * * *

B. Dowler, M. D., etc., etc.

"Consumption.—The opinion is very prevalent that this disease is as natural to cold countries, where the climate, like ours, is variable and great changes of temperature are often experienced in a few hours, as the yellow fever is to low southern latitudes, and those afflicted with it are often sent, even by physicians, into warm countries, with the hope and expectation of a cure. Some person who has been hunting up facts and statistics for the purposes of life insurance, has elicited some curious information on this subject from Dr. E. H. Barton, of New Orleans, which goes far towards overturning the common belief in regard to it. We subjoin the questions and answers:

Q.—Are pulmonary diseases rife in certain portions of the south western States?

Reply.—They are, (the exact amount I cannot trust to my memory to state.)

Q.—If so, under what forms and modifications from those of the north?

Reply.—Phthisis pulmonalis, or consumption proper, exists to a large extent at the south, and particularly on the sea board and low, damp places among both colors. There is more pneumonia and pleurisy, as a class of inflammatory diseases of the pulmonary apparatus, at the north and less at the south; but I think I can venture the statement, without having the figures before me, that *phthisis to the population* is more rife at the south than at the north, and particularly in low, damp and marine regions; I know how contrary this is to popular and professional belief.

Q.—The relative proportion of such diseases as occurring among natives and strangers?

Reply.—Statistical records do not show; but in my experience they certainly exist more among the natives than strangers, excepting from the comparison those who visit the climate from its supposed curative effects.

Q.—Are the cities or the country most subject to such diseases?

Reply.—The cities are more subject to phthisis among the whites, and

the country among the blacks. And the inflammatory affections of the pulmonary apparatus are also more rife in the country.

Q.—What influence has the topography of the section of country in which such diseases prevail upon their frequency or security?

Reply.—Whenever the causes of moisture exist to an unusual degree, there likewise the liabilities will exist and predominate. But in the higher and drier portions of the country, the other or inflammatory pulmonary affections are most apt to prevail.

Q.—Is the climate of Cuba adapted to northern invalids who are suffering under tubercular or other pulmonary diseases?

Reply.—First. From several years professional experience there, I consider it *fatal* to any form of phthisis or tubercular disease, after it has arrived at the suppurative or ulcerative stage—indeed, not safe in any way.

Second. In relation to the other inflammatory pulmonary diseases it is different. In *their* earlier stages it is often of great benefit.

The remarks under the first head apply very particularly to the city of Havana and the cities generally, and the reason is palpable enough, for here there are two immense sources of exhaustion from the disease—in the great drain from the lungs and skin, and the second is derived from the enfeebling heat of the climate.

Q.—Is the occurrence of diseases of the respiratory organs frequent in this island?

Reply.—They are very frequent throughout most of the island, and vary from ten to twenty-five per cent. of the entire mortality. The city of Havana is the worst of the whole island in its liability to, and prevalence of this class of diseases. Indeed, I think I may be justified in stating that the deaths from phthisis is from twenty-two to twenty-three per cent. of the entire mortality; and the mortality from all pulmonary diseases amount there to twenty-five per cent, of the whole mortality. I now refer to the mortality occurring among the natives of the island. Those who visit it here and die, only furnish a small fraction of a per cent.—not sufficient to influence general deductions.

Q.—Do these remarks apply to other West India climates?

Reply.—I believe they do, so far as the principle goes, of great and exhausting heat, enfeebling the patient and impairing his vital energies and reactive power in the secondary stages of phthisis and all tubercular diseases.

Q.—Which portion of Cuba is best adapted to invalids suffering under pulmonary diseases?

Reply.—The interior and more elevated portions.—*Boston Journal*, August 28, 1857."

The above views of consumption "as being more rife at the south than the north, though contrary to the popular and professional belief," do not coincide with Dr. Barton's figures as he has reported them, as late as 1849, in Dr. Fenner's *Southern Medical Reports*, vol. i, p. 85, to wit:

	Death from Phthisis to Total Mortality.	Death from all Pulmonary Diseases to Total Mortality.
Philadelphia........	14.84 per cent.	28.57 per cent.
New York..........	17.50 "	28.08 "
Havana............	19.50 "	25.07 "
Boston............	15.13 "	23.97 "
Baltimore.........	18.20 "	23.33 "
Charleston.........	18.27 "	27.73 "
Mexico (city).......	2.45 "	16.76 "
Norfolk...........	11.01 "	12.78 "
New Orleans.......	9.37 "	13.87 "

In regard to the mortality from consumption in New Orleans (though not put half as high as in Philadelphia and New York) Dr. Barton justly says: "Many [consumptives] doubtless, visiting this mild climate [in New Orleans] on account of its kindness to pulmonary invalids, and here falling victims to the disease already beyond the reach of art or climate, and adding to our mortality in that respect. The whole class amounted to 876 [for the preceding year]. Of these, CONSUMPTION embraces 592; leaving only 284 for all other pulmonary diseases! By the table it will be seen, that notwithstanding the addition made to our mortality by emigrants and visitors with these diseases, yet we are more favored than any large city in this hemisphere."

The late Dr. Drake, misled by military statistics, concluded that "the mortality from consumption is greater in the south than in the north." He says, however, that "it is necessary to recollect that consumptives, whether predisposed or actually ill, are constantly traveling or migrating from the northern to, or through, the more southern cities, the reverse of which scarcely ever happens." Dr. Drake says that the ratio of deaths from consumption is 71 per cent. greater in New Orleans than in Boston. These facts are not merely conclusive, etc., of the greater mortality from that disease in the south than in the north," etc.—(*Dis. Valley Miss.*, vol. ii.)

The climatic law of mortality applicable to consumption cannot, strictly speaking, be deduced, excepting from the native population. As already stated, the immigration of consumptives for the real or supposed benefits of the climate in New Orleans, Havana, and other southern places of resort during the winter or permanently, might give such places an apparently high ratio of mortality not inherent in the climate. If the prevailing theoretical figures and opinions should induce consumptives to remove to the northern States, to Maine, for instance, the mortality from consumption in that State might be doubled so as to reach one in two of the total deaths, instead of one in four and a fraction as at present.

In a very elaborate classified table of the deaths in the cities of New Orleans and Lafayette (now consolidated) for the year 1850, by Dr. J. C. Simonds, it appears that the total deaths were 8,086; to this aggregate, consumption contributed but 681, or one in thirteen and a third (13.33+), agreeing with Dr. Barton's report for the preceding year.

In 1854, Dr. Barton published in his *Report on the sanitary condition of New Orleans* a table showing that during the preceding year, the mortality from consumption was to the whole mortality but one in twenty-one nearly (1 in 20.7+). As this was the great epidemic year of yellow fever, the latest official statement will now be given, namely, *The Report of the Board of Health to the Legislature of Louisiana*, (Jan., 1857) which states that from the 27th of April, 1855, to the 1st of May, 1856, the mortality of the city of New Orleans amounted to 9,085, to which number consumption contributed but 652, or one in fourteen nearly, (1 in 13.93). For the year ending December, 1847, the total mortality was 7,499; consumption being 572, or one in 13.11+.

The total number of deaths in Boston for the five years ending with 1854 was 19,983, including 3,421 deaths from consumption, or as 1 in 5 and a large fraction, (1 in 5.87+). The deaths from pneumonia during the same period reached 1,108; from both diseases 4,529, exceeding one in four and a half, (1 in 4.41+).

Amasa Walker, Esq., Secretary of State of Massachusetts, in his able official Registration Report, (Boston, 1851) says that "of the 102,596 deaths (including the city of Boston) within the last nine years, and whose diseases were specified, (besides those who died by violence) 22,342 are from consumption! that is more than one out of every five deaths (21.78). This may be confidently stated as very near the general law; inflammation of the lungs added to consumption, make 26.66 per cent., more than one quarter of the mortality."

The statistics of consumption in New Orleans indicate a mortality more than twice as high as either the northern or southern sections of the residue of the State, according to the official mortuary statistics of the 7th Census of the United States for the year ending June 1, 1850. Thus in the northern section of Louisiana, total deaths 3,664—consumption being 120, or 1 in 30½; in the southern section, total deaths 3,980; consumption 159, or 1 in 25.03. This disparity so favorable to the rural districts as compared to the city, is accounted for by the great influx of consumptive immigrants who come to reside in the latter.

In the eastern district of South Carolina, wherein 2,339 deaths took place, 102 occurred from consumption, or 1 in 23 nearly, (1 in 22.9).

The city of Charleston forms a part of this district. The northern district of this State, wherein 1,853 died, included but 72 deaths from consumption, or 1 in 26 nearly, (1 in 25.73); in the southern section, deaths 1,883; consumptions 52, or 1 in 36.2. Hence it appears that the district in which Charleston is, has, like New Orleans, a higher mortality from this disease than the residue of the State, and, probably, for the same reason, namely, the immigration of consumptives.

It may be allowable once more to say that it is absolutely contrary to the fundamental laws of probability, that the United States' marshals employed in taking these mortality statistics of the year 1850, should have all erred in the same manner in their enumerations concerning the deaths from consumption throughout this vast Republic. It transcends the possibilities of the doctrine of chance, that there should be a material error among so vast an assemblage of facts collected at the same time, under similar circumstances, without collusion, and without a motive to deceive. That 24 millions of people, north and south, should make false or mistaken statements, all tending uniformly to show that consumption prevailed from four to nine times more in the north than in the south is impossible. Put twelve millions of white and as many black balls in a box, and let the U. S. marshals, blindfolded, draw out twelve millions in succession, and then examine whether all drawn have the same color? A few drawings like the isolated military statistics, might be of the one color alone, but a large number of drawings will develop and forever maintain the law of uniformity with slight and unimportant oscillations. To suppose that the ratio of consumptives and the number of deaths are governed by no positive law, or a capricious one, is unphilosophical. It is probable, though not statistically proved, that the mortality from consumption in the south is greater now, in equal numbers of the population, than it was in early times, but there can be no doubt that among the inhabitants of the southern States, up to this time, consumption is less prevalent than among those of the northern States, be the cause what it may. From the nature of the case, no isolated individual opinion or experience is sufficient to decide in this respect, upon the climatic workings of a country larger than all Europe, especially when opposed by the statistics officially reported of the entire nation.

ART. VI.—*A Letter to the Honorable Charles M. Waterman, Mayor of New Orleans:* from JAMES JONES, M. D., one of the Delegates to the Quarantine Convention.

DEAR SIR:—I have the honor of enclosing for your perusal the official minutes of the proceedings of the Quarantine Convention held in the city of Philadelphia, on the 13th of last May. Although sanctioned and promulgated by the authority of a large majority, there are parts of these proceedings so hurriedly adopted, which, in my opinion, do not justly represent the collective intelligence and deliberate convictions of the respectable delegates to this convention, however properly they may be regarded as the favored measures of those by whom it was convoked, regulated and controlled.

The neglected precedents of the great sanitary congresses assembled at various periods in Europe, offer valuable aid to those projected in America. From the minutes of the last general international conference held at Paris in 1852, by delegates from every great power in Europe, I will briefly present a few of the principal measures adopted as a standard of comparison in appreciating the resolutions of our own quarantine convention.

In relation to diseases susceptible of being introduced by arrivals from sea, the high contracting parties agreed

Firstly. To apply their regulations only to cholera, plague and yellow fever.

Secondly. That all vessels shall be provided with bills of health—to be of two kinds, clean and unclean.

Thirdly. To establish uniform terms of detention, and to determine their minimums and maximums: making the

Minimum quarantine in reference to plague....	10;	maximum 15 days
" " " yellow fever	5;	" 10 "
After a long voyage from an infected port, without any sickness on board......................		" 5 "
With sickness on board....................	7;	" 15 "
Detention of ships from cholera ports..........		5 "

Fourthly. All articles of merchandise are to be divided into three grades or classes, viz.:

1st. The first class consists of those which, if on a ship bringing foul bills, are to be invariably quarantined and purified. These are baggage and other personal effects; rags and remnants of clothing; hides and peltries; hair and all other animal refuse; wool and silk.

2d. Includes those subject to discretionary or conditional quarantine, viz.: cotton, linen and hemp.

3d. All others not thus named, which are exempted.

Fifthly. Full provisions are to be made for the institution of lazarettoes, and other necessary asylums for passengers and crews.

Sixthly. All ships arriving from sea are to be assessed for sanitary fees according to their tonnage; a regular per diem is to be paid for detention by the ship, and lazaretto charges daily by passengers and crews.

Seventhly. Merchandize shall be taxed for purification by weight or value.

The Royal decree promulgated in May, 1853, in conformity with the acts of this congress, gives the most minute directions to be observed by ships when in port, when at sea, and when about to enter. It makes ample provisions for the organization of quarantine establishments; indicates the necessary officers; defines the different forms and degrees of quarantine; gives ample directions for the processes of ventilation, landing, purification, and if necessary of burning and sinking of certain articles; and provides requisite rules for the prosecution of delinquents, and the infliction of fines and penalties for the contravention of any of these necessary regulations.

In passing from these practical and systematic ordinances to the resolutions of the Philadelphia Convention, we remark:

Firstly. That as objects of quarantine regulations, yellow fever and cholera are entirely secondary to small pox and typhus.

Secondly. That notwithstanding the reiterated indictments of foul ships, foul cargoes, filthy bedding and squalid passengers, there is no provision for a preliminary survey before the voyage, or for the exaction of proper certificates issued at the time of departure.

Thirdly. While professedly legislating on the institution of uniform quarantine regulations, there is no specification of the requisite periods of time necessary for the detention of suspected ships.

Fourthly. No basis has been proposed for a uniform scale of fees and charges for inspection, detention, purification and other necessary processes.

Fifthly. There is no recommendation for classifying articles of merchandize according to their relative characters as generators or vehicles of disease—if we except the manifest efforts to proscribe sugar, molasses, grain and cotton, the great staples of our southern ports. I had the first three erased from this catalogue, but could not prevail when we approached the last. I insisted on the classification of all of the so-called dangerous articles or of none. In all the European lists you will find various animal and vegetable substances standing far above cotton—several of which are more porous and more perishable. I am aware of no

well attested facts affirmative of the reputed character of cotton as a vehicle of foul air. Tardieu and other sanitarians entertain considerable doubt on this subject. There is nothing in the reactions or minute structure of cotton indicative of extraordinary porosity, it floats a long time on water; and the microscopic observations of Raspail and of Bauer have long since established that the fibre instead of being cylindrical and open at the extremities, like linen and hemp, is as flat as a ribbon, with adherent sides and ends perfectly closed.

By referring to the proceedings of May 14th, you will perceive that I succeeded for the time in having the fourth resolution laid on the table. I contended--I will always contend in relation to this resolution and others of a similar character--that an association of gentlemen of almost every profession, ostensibly convened for the recommendation of uniform quarantine regulations, had no authority to resolve itself into a scientific congress for the promulgation of hypothetical dogmas on the origin and propagation of epidemics. Entertaining in common with many distinguished men in my profession, that every form of these zymotic diseases originates from the operation of some specific yet undetermined agent peculiar to each, I hold it unworthy of an association occupying the conspicuous position of a model of American state medicine to be reïnscribing and endorsing the antiquated theoretical formulæ for the causation and evolution of epidemics by ordinary putrefactive fermentations, peculiar (common) meteorological conditions and other familiar agencies which have prevailed for a thousand years in a thousand favorable localities, before either cholera or yellow fever were known to the human race, and which have been either entirely absent or strangely dissimilar where these formidable maladies have been most extended and most fatal.

For these reasons, also, I became the principal actor in the reconsideration and tabling of the resolutions declarative of the non-contageousness of yellow fever. They were, under any circumstances, entirely unnecessary, for the whole tenor of these proceedings is in repudiation of the present theory and practice of quarantine, and in direct opposition to the communicability of cholera and of yellow fever. Apart from a beneficial moderation of the long restraints often unnecessarily imposed upon crews and passengers, I anticipate no useful practical result from the proposed substitute recommended by this convention. the invariable detention and purification of all ships arriving between the first of May and November, without any discrimination, is a useless trammelling of commerce, attended with no little increase of unnecessary and expensive procedures.

Justice compels us to acknowledge the value of the excellent practical suggestions adopted by this convention on the sanitary condition of ships and cargoes and of crews and passengers. This important and interesting subject of naval hygiene is beyond the jurisdiction of the State and municipal corporations represented in this convention. The Congress of the United States has already, by the act of March, 1855, contributed largely towards the objects specified, and will be readily influenced by the proper representatives of our great commercial communities and by the presiding officers of our boards of trade to pass such additional acts, as will render every ship that sails under the American flag, whether it is at sea or in port, clean, dry and well ventilated. This, as I conceive, is the only method by which any system of naval hygiene can be established that will be practical and uniform. It cannot be effected otherwise by the coöperation of all of the bodies represented in the future meetings of this association.

Few have devoted much attention to the history of quarantine who repose much confidence in its protection. The system is more opposed than the principle. Our large cities, while they close all the approaches by sea, leave the other avenues perfectly unguarded. Along miles of accessible coasts prevail contraventions fatal to the objects of quarantine, while the reïterated charges of deceptions, negligence and abuses, weaken its claims upon public confidence.

The repeal of all quarantine regulations by England and by some of the Eastern States not subject to yellow fever, should exert no influence upon those who dwell within the limits exposed to its visitation. The institution of quarantine by the State of Louisiana after the great epidemic of 1853, was a proper and laudable experiment. The law subserves every practical requisite, let it be faithfully executed. So long as it appears to succeed it should be sustained, when it fails, we hope that the authorities will not remain satisfied with this solitary public effort for the protection of public health. Where quarantine regulations do generally obtain there is a manifest propriety and necessity for uniformity. If, in the opinion of this convention, they are of limited value, I can discover no necessity for another session. Having made an attempt to change the title to that of Sanitary Convention, we have an evident indication of the future objects. The institution of uniform sanitary regulations in all the great cities of this country is unnecessary and impracticable, for no advantage is to be anticipated from a coöperation by which localities; differing in every attribute of climate, soil, elevation, drainage, maladies and hygeinic facilities should be subjected to the same sanitary ordinances.

I willingly sustained every sanitary provision submitted to the action of this convention, and will equally advocate every measure emanating from yourself, or from the city council, intended to augment the resources of the Board of Health. The condition of New Orleans is susceptible of great melioration, which can only be attained by more efficient means for inspection, and for the prompt execution of the present and future sanitary regulations. Moisture, I have always contended is our most hostile element, it is mainly by its reduction that we can hope to arrest putrefactive fermentation and its noxious exhalations. Instead of attempting to wash out our gutters by the present inadequate supply of water, wherewith they are regularly flooded for stagnation and deleterious putrefaction, every available means should be adopted for keeping them dry. The dust should be carefully swept from the paved streets, (all streets should be paved) instead of having it raked up into wet and reeking piles. The bridges, which during our frequent rains operate as the most effective dams and filth traps, should be entirely removed from the higher parts of the city, and so much widened in the lower, as to offer an unobstructed and rapid descent to currents of water of which the eddies now cast cart loads of foul mud at every corner of the streets. Every privy in the city should be thoroughly cleansed on the approach of hot weather. Their wells should be made water-tight to prevent impregnation of the soil, and water closets should be entirely prohibited until we have a good system of underground drainage. I am informed by Dr. Rushton, now a member of the board of health, that there are plans for the last purpose proposed by eminent engineers of this city, simple, feasible and by no means expensive when estimated by their universal convenience, and their indispensable service in promoting the sanitary condition of the city.

The board of health should be clothed with full powers to enter and take possession of every infected district on the apparent inception of an epidemic; to make a proper disposition of the occupants; to fence it around and cut it off from communication with other parts of the city, and to wash, fumigate, pull down and burn everything therein capable of maintaining or spreading disease.

The origin and propagation of yellow fever are topics so vitally associated with every interest of our southern cities, that there are few subjects more familiar to our citizens of every class, who according to their various convictions, maintain one or another of the exclusive opinions existing among the members of the medical profession. The larger proportion advocate the doctrine of its local origin, attributing to heat, moisture, filth and putrefactive fermentation, the whole series of pheno

mena necessary for the production of this disease, which may either operate by themselves, or be called into action by the opportune arrival of a foul ship with a foul cargo. A smaller, but equally respectable party, who since the days of Rush have been somewhat opprobiously termed "contagionists," believe that yellow fever is of foreign origin, and transportable from place to place by ships, merchandize, baggage and individuals. While a third party, disregarding such apparently simple and matter of fact dogmas, have imagined a combination of certain earthy, watery and atmospheric elements with peculiar meteorological conditions, of which one conjunction generates yellow fever, and another conflux cholera. With all due respect for the authors of this very improbable hypothesis, I am compelled to maintain that it is a premature deduction from a very limited series of observations.

As regards the two prevailing doctrines of the local and of the foreign origin of yellow fever, it is a reasonable interrogatory why they should be held so absolutely incompatible and antagonistic, that its production by one must necessarily exclude its propagation by the other. Neither party pretends to indicate the real and essential nature of the morbid agent. If, as some contend, this be a minute cryptogamic or fungous vegetation, why cannot it be transported? Why may it not lie dormant for an indefinite period to be developed by the local causes which they invoke? If the germs be animalcules, why cannot they multiply and be transported? If the cause be a special fermentation, why cannot the leaven be subject to the same diffusion that is characteristic of similar ferments? This is something beyond a mere scientific question—it is a momentous question, involving the most responsible of all issues; and how, in this aspect, any man or any convention of men, in the conflict of so much respectable testimony can find confidence enough to declare that one or the other is the only correct doctrine, or that there is not much truth in both, is more than I can possibly comprehend.

Should a query be propounded in this connection, whether the same disease may be at one season communicable and at another not, I will respond that there is good evidence for an affirmative answer, that diseases, pathologically among the most simple, may, by a variation of morbid elements, become epidemic and even contagious; that small pox, measles and scarlatina, the most contagious of maladies, may exhibit extraordinary degrees of communicability, both in periods of time and in places, remaining long dormant in the one, prevailing so diversely in the other, that there are portions of the earth they have never invaded.

We are thus induced, however, to contemplate this subject in another

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aspect. Is yellow fever always the same disease? Is there more than one type? Have we an epidemic form generated by the action of local causes, and not capable of being carried beyond the limits of the city in which it originates? Have we an epidemic and contagious form which travels in wider circles, and is transportable independently of mere local conditions? I, myself, have no hesitation in declaring that yellow fever is subject to great variations, that we have two very characteristic types, and that the ordinary or endemic and the epidemic forms as they have prevailed in this city, are as distinct in their symptoms as they are apparently in their origin, development and mode of propagation.

The fever of 1853 differed in many important particulars from that of our previous experience. It appeared nearly two months in advance of the ordinary period, and long before the local causes to which it had been hitherto generally attributed, had full time for their operation. It presented characters so novel and peculiar in this region, that many experienced medical gentlemen called it not the yellow, but the pernicious fever. Native children, seasoned residents, and negroes heretofore subjected to it only in the simple and least malignant form, suffered and died with it in large numbers. Instead of terminating favorably or otherwise on or about the fifth day, its duration was generally more protracted, and it ended fatally on any day thereof from the first to the twentieth. Relapses were very frequent; many who were apparently for several days in full convalescence, having an unexpected return of the most dangerous and fatal symptoms. The fever was not of one paroxysm, but generally more or less remittent, and often at the end of from four to seven days assumed a secondary nervous and protracted character, terminating like our secondary exanthematous fevers by elimination in abscesses, boils and carbuncles. Delirium and other grave nervous symptoms in adults, with convulsions in children, appeared often on the very inception. The whole intestinal canal was in most cases inflated with gas from the second day. The urinary secretion in the worst cases remained copious to the last. The bodies of many, particularly of the children who died, never turned yellow, and while the general mortality was unprecedented, the number of recoveries from black vomit was greater than I have ever witnessed before. To the unprofessional as to the medical man, the most uncommon feature in this epidemic was its extension into villages, plantations and the healthiest, dryest, most barren and insulated spots of this and of the neighboring States, where no terrene exhalations could either be suspected or proved to exist, and that during the absence of the most prominent meteorological conditions so constantly invoked to explain its mode of propagation. The most indisputable and direct testimony, both professional and

otherwise, has been adduced to prove that the fever conveyed to many such places by the sick and by fomites, was widely propagated. I know that I can safely assert that a large majority of my respectable medical associates in this city, have expressed a conviction of the truth of these statements, so antagonistic to our former doctrines. The report of the sanitary commission appointed by the council in 1853, abounds in direct and positive testimony to a similar effect, both by letters and otherwise, from the most respectable sources, which has been most contemptuously ignored by its principal and most voluminous author. No unprejudiced man can rise from the perusal of the history of the inception of that epidemic, almost entirely given by those opposed to its contagious propagation, with the conviction that it was clearly of local origin. I appeal to the published histories of every epidemic that has visited this continent, to prove the impossibility of procuring undisputed evidence concerning the exact points and modes of their incipience and propagation in large cities. I will offer in illustration, one of our ordinary diseases. We have two forms of continued fever, typhus and typhoid, which are held by some pathologists to be, like endemic and epidemic yellow fever, identical diseases of different types, and by others, to be affections entirely distinct. The typhoid fever, after prevailing for many years in Paris and in the other great capitals of Europe, was held to be non-contagious by several of the most eminent physicians. The sources of its propagation in large cities were too diffused and multiplied to be satisfactorily determined. Immediately that its progress was faithfully traced through villages, farm houses and other insulated places, where the alleged local causes of its production were reasonably supposed to be absent, its contagious nature was well established and generally credited. By a similar series of observations, I maintain that the communicability of yellow fever has been successfully demonstrated, and that the same mode of propagation by which it has certainly progressed from the city outwards, would be equally capable of bringing it in.

I am fully sensible of the unusual length of this communication, which I hasten to terminate. Had the author of the principal portion of the late sanitary report seriously predicted the epidemic of 1853, why was he absent when it prevailed—why did he not warn the unprotected of the impending calamity? In my opinion, the philosophical physicians who watched with apprehension the extending ravages of the fatal epidemic, which for four years had been sweeping from the Brazils to the shores of the Gulf of Mexico, might have more safely predicted its inception in New Orleans from a tendency to dissemination, than from any amount of earth that was thrown up a mile from the place of its inception, or from any peculiar meteorological conditions which have

only been pretended to be established in one portion of its wide and fatal range.

There are facts in the history of our epidemics which the hypothesis of local origin does not embrace. We are compelled to invoke other agencies for a more logical rationale. There must be also an extraordinary epidemic influence, and some novel and doubtless contagious mode of propagation. I therefore insist, that we ought to observe every precaution that can abate the local conditions alleged to be productive of yellow fever; that we are equally bound to maintain a strict quarantine so long as it is proved to be useful; and that we ought further to insulate and purify every part of the city in which this disease first makes its appearance.

A proper regard for the welfare of that numerous class of our population, whose limited circumstances oblige them to remain exposed to all of the perils incident to our frequent epidemic visitations, should compel us to employ some efficient method of relief. What amount of sickness and of mortality might not be averted from this useful but unfortunate position of society, by a judicious application of the very sums now disbursed for the expenses of their illness and interment. Humanity should not alone induce us to adopt some wise and liberal project for their removal on such occasions to a safe distance from infection—it is, in my opinion, the most politic system whereby to curtail the black catalogue of mortality forever impending over the reputation and prosperity of New Orleans. We cannot, farther, too emphatically invite attention to the heedless disregard of every impulse of humanity, by which hordes of ignorant immigrants, peculiarly susceptible to epidemic influences, are permitted to enter within the very foci of infection, the majority of whom, merely passengers in transitu to the west, have no other claims, beyond those of their necessities and afflictions, upon the generous community burdened by their charge, and compromised by their fearful accessions to its mortuary reports.

Although my resolution on these important points was favorably received by this convention, I regret that it did not propose some stringent enactment by Congress for the better protection of raw immigrants, and for the security of communities hazarded by their debarkation.

New Orleans, in common with our other southern cities, has been in every season the invariable victim of credulous and unprincipled letter writers, who manufacture for foreign circulation the most unfounded and diabolical reports of its mortality and insalubrity. These, while operating in many ways injuriously to her interests, have been made, it is said, the plea for quarantining her vessels and unnecessarily and ruinously obstructing the course of her commerce. By the advice of

several of the eminent delegates to this convention for the adoption of uniform quarantine and sanitary regulations, it was deemed a proper occasion for the introduction of the two resolutions recommending that no unfounded reports or rumors indicating certain ports or cities as the seats of epidemic diseases should be the basis for action elsewhere, and providing farther, that all boards of health and other public authorities should be obligated to declare not only the existence of cholera and of yellow fever in their epidemic, *but also in their sporadic forms*, in the localities under their control. The words italicized, which were intended to secure faithful and reliable evidences of facts the most interesting to all concerned, both at home and abroad, have been inadvertently omitted by the excellent secretary of the convention.

In conclusion, permit me on this occasion to acknowledge the honor conferred on me by the nomination to this convention; to bear willing testimony to the courteous disposition of the eminent gentlemen who attended it; and to render to the majority of the Philadelphia delegations, and to those of Boston, Baltimore and Norfolk, the highest respect for the eminent position which here, as elsewhere, they have universally occupied.

Your obedient servant,

New Orleans, October 1, 1857. JAMES JONES.

ART. VII.—*Abscess of the Brain:* By YELVERTON B. EGAN, M. D.

IN the month of February last, I was requested to visit a female child on Dr. W.'s plantation, whose age was 18 months.

I found it suffering from otorrhœa of the left ear, which occurred from an accident during delivery. I was informed that the mother, during the pains of labor, left her bed, and while in the act of running across the floor, the child fell from her.

When I saw it, it was well grown, but had an expression of countenance which indicated considerable suffering, although it never had convulsions or paralysis until within a few hours before death. When nine months old it passed through an attack of measles, but without any apparent effect on its disease.

I prescribed a simple injection, which had the effect of stopping the discharge from the ear, but it was followed by a venous hæmorrhage which occurred three times during an interval of five or six days, and then terminated in death.

Autopsy: Upon removing the skull-cap, I found on the diseased side (the left,) the three membranes of the brain completely blended together; on cutting through them, an abscess extending from the petrous portion of the temporal bone to the apex of the middle lobe, and forward to the fissure of silvius, extending downward to the corpus callosum, with nearly complete disintegration of the posterior lobe, leaving a mere shell to cover it.

Pointe à la Hache, La., Aug. 15, 1857.

ART. VIII.—*Hydrocele; Operation; Cure:* By GREENSVILLE DOWELL, M. D., of Columbia, Brazoria County, Texas.

NEGRO man Ben, *æt.* 63. General health good. Was sent to us for cure of a hydrocele of long standing. He says he was taken with it some twenty years since in Mississippi. That he was operated on by a physician in that State. That he injected a red fluid into the sack, after he drew off the water. That it made him very sore but did not cure him, as the water soon refilled the sack, and he was as bad as before the operation. He has been operated on some seventeen times by puncture; it having been necessary about every six or eight months.

June 18, 1857. The dropsy is in the left side of the scrotum, which is now so much distended and enlarged, that he can scarcely reach around it with both hands. In consultation with my partner, Dr. R. R. Porter, we determined to operate on him for a radical cure, and owing to his age and the great accumulation of water, we thought it best to use a seton. Thinking that the injections would fail to perfect a cure, Dr. Porter operated as follows: Seizing the bag with his left hand, he passed a trochar into the sack and out, again withdrew the trochar and left the canula in this situation until a silk braid was passed with a probe through the canula. This done, the braid was held until the canula was withdrawn, so as to let off the water. After the water was all drawn, the two ends of the tape were loosely tied so as not to cut with the anticipated swelling of the sack. The tape was left in for eight days, by which time the sack had swollen nearly to its usual size, and was quite painful and began to discharge pus and water. It was bathed with sugar of lead and a solution of morphia. After the fever had somewhat abated, used tincture of iodine. The bowels were kept open with Epsom salts, and occasional doses of calomel and ext. of taraxa-

cum. For nearly two months the sack discharged pus and water, gradually getting smaller and less painful. He suffered from no inconvenience during this time except the discharge and soreness of the sack.

He is now (Sept. 20th) entirely well, his testicle being of the usual size. He bids fair to live twenty years yet, and the owner says he is worth $200 a year, having saved that much to the plantation since he had got well.

ART. IX.—*Researches into the Sanitary Condition and Vital Statistics of Barbarians:* By BENNET DOWLER, M. D.

IN order to restrict this paper as much as possible, consistently with its purpose, only a small portion of vital geography will be glanced at through the medium of the most recent and reliable observers, who have personally witnessed the facts which they relate.

Amiable but speculative philosophers, smitten with admiration for the primitive life and manners of the houseless nomade or savage hunter, have sometimes been led to distrust or even to deny altogether the benefits of civilization. A remarkable example of this bias in favor of the superior sanitary advantages, vital progress and supreme happiness of savages, is displayed in the works of Dr. Rush in his essay entitled, "*An Inquiry into the Natural History of Medicine among the Indians of North America; and a comparative view of their diseases and remedies with those of civilized life.*"

Vital statistics, a science of recent origin, proves that neither the ancient philosophers who declaimed against the corruptions of wealth, nor the modern grumblers who declaim against the luxurious civilization now extant, can justify themselves and their theories by indubitable facts. Neither personal nor national poverty is favorable to the health, longevity, increase, or well-being of man.

Dr. Rush's opinions, so favorable to savage life, are refuted by an exuberance of modern testimony. These opinions will be tested chiefly by the Medical Statistics of the army lately published. And although these official reports serve to illustrate the subject under consideration, yet apart from the latter, they are in other respects highly interesting, to the philanthropist, physiologist, and physician, as will be seen in the sequel.

Dr. Rush, it would seem, was led by the writings of Charlevoix and others, to form an ideal of the Indian almost as extravagant as that

which has since been more fully developed in the gorgeous fictions of Cooper, and in the poetry of Longfellow, not to mention Catlin's flattering delineations. The search after the poetical element in the Indian character is a hopeless task, even if M. Tocqueville's standard of poetry be admitted to be just, namely, that the art of poetry consists in the suppression of a part of what exists, the adding of imaginary touches, the combining real circumstances which in fact do not concurrently happen, the object being not to represent truth, but to adorn it with lofty imagery. Such a standard cannot be accepted in physic.

Dr. Rush asserts that "the treatment of children among the Indians tends to secure their hereditary firmness of constitution, etc. Nature is their only midwife. They know nothing of the accidents which proceed from the carelessness or ill-management of midwives," etc.

"The state of society," says he, "among the Indians, excludes the influence of most of those passions which disorder the body. The turbulent effects of anger are concealed in deep and lasting resentments. Envy and ambition are excluded by their equality of power and property. Nor is it necessary that the perfections of the whole sex should be ascribed to one, to induce them to marry. Thus they are exempted from those violent and lasting diseases which accompany the several stages of such passions in both sexes among civilized nations. There are no deformed Indians. Fevers constitute their only diseases. I have not been able to find a single case of fatuity among them. Nor is dentition accompanied by disease. They appear strangers to diseases and pains of the teeth. If their remedies are simple, they are, like their eloquence, full of strength," etc., etc. In this strain Dr. Rush proceeds to compare the savage and the civilized states, giving the former a strong *couleur de rose*. The evils of modern civilization he depicts in dark colors, as a panorama of ghastly maladies, a realm of death.

Before proceeding to offer recent documentary evidence adverse to this Indian utopia, it may be proper to remark that, although the doctrine of hybridity cannot be positively affirmed as inherent in any variety or fusion of the human species, yet some physiologists think differently, and, such would seem to be the import of a portion of the first army report which follows, and which, however, it may be in vital statistics, is quoted to show the state of medicine, etc., among the Indians, as being little accordant with the picture drawn of them by Rush of blessed memory.

Dr. Day's communication is dated July 5, 1852, at the Winnebago Agency, which accompanies Assistant-surgeon Head's report, and contains the following conclusions concerning the vital statistics, etc., of

the Winnebagoes, together with his observations upon the mixed breeds generally, in the North-western territories of the United States. Dr. Day says:

"1. That the mortality is greater among these Indians than among the white race, and somewhat higher than in the worst class of the negro population of the United States. 2. That the average age at death is much less than in any other class of the American population. 3. That in the early periods of life the mortality is far greater than in the corresponding periods of any other race. 4. That the proportion of births among these Indians is greater than among a corresponding number of any other people. 5. That this tribe has not diminished in numbers within the last three years.

"Since my acquaintance (now some seven years) with the population in the North-west, of mixed white and Indian blood, I have made the following observations, which I believe may be set down as facts: 1. That a mixture of the white and Indian races produces an offspring of less physical and moral force, and of less viability than either of the original races. 2. That the offspring of this mixture of the two races is a *hybrid, and incapable of propagating itself beyond the third or fourth generation.*

"So long, however, as one of the parents is of pure white blood, the offspring may be, to a certain degree, healthy, but it is not generally vigorous; but when both parents are of mixed blood, the offspring is nearly always scrofulous, feebly developed, and generally dies before the accession of puberty. I have never known an individual, whose parents were *both of mixed blood, live to old age.*"—63.

"The large percentage of deaths occurring in the early periods of life among these Indians, is abundantly accounted for by the Spartan treatment to which they are subjected in infancy. As soon as an infant is born, it is laid on a board, previously covered with a few folds of blanket, then, with a strip of cloth two or three inches wide, is as amply and securely bandaged from head to foot as an Egyptian mummy, and then strapped to the board, care being always taken to include the arms which are extended upon the sides of the infant, and leaving nothing out of the bandage but its head. In this straitened position they spend the greater part of the first year of infantile life, remaining at times for weeks without being taken from the board. The effect of this cradle (?) with the heavy woollen bandages, is to interfere with, if not entirely preclude, the healthy functions of the skin. The excrements of the child's body collect, excoriating the skin, and keeping up constant irritation. The motions of the limbs—the only voluntary ex-

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ercise an infant can have, and one so necessary to the development of its physical powers—being entirely precluded, it soon becomes weak and enfeebled. But the most pernicious effect of strapping their infants upon these boards is exerted upon the brain. Being always laid upon their backs, with little or nothing between the hard board and the imperfectly ossified head, the continued pressure exerted by the weight of the head, almost universally produces a displacement of the occipital bone inwards, causing trismus nascentium, paralysis, etc., and deranging the functions over which the cerebellum presides. They think it a mark of great comeliness to have the head perfectly flattened behind, and the Indian mothers show much anxiety in this respect. It is wrong to suppose Indian children better capable of surviving less careful treatment in infancy than those of whites. The former are generally born with less vigorous constitutions than the latter; and taking into consideration the numerous causes of disease and death to which the forest children are subjected, the wonder is, how *any* survive—not why so many die."—64.

"An Indian will generally survive a greater bodily mutilation than a white man. This has been attributed to the simplicity of their diet. It is, however more probably the consequence of a lower degree of organization, and less delicate sensibility of the nervous system. The diseases incident to the female organs of generation are extremely common, especially prolapsus uteri and leucorrhœa. The former of these complaints, amounting in many instances to complete procidentia, is so frequent, that a majority of all the women who have borne children are affected with it. Nor is this surprising, when the ill-treatment to which their parturient females are subjected is taken into consideration. They never maintain the recumbent position an hour after delivery, and generally return within a day or two to the labors of the corn field, or to the carrying of heavy burdens, and performing all the laborious duties usually assigned to the squaw. An Indian woman can no more violate, with impunity, the obvious hygienic treatment necessary to the parturient state, than a white woman. The progress of parturition, among Indian women, does not differ in any material respect from the same process in others; except, perhaps, in being somewhat shorter, and attended with less suffering, which I believe to be owing rather to a low degree of nervous sensibility, than to any material physical difference."

Assistant-surgeon, Alexander B. Hanson, in his report dated in 1856, on the topography and diseases of Fort Ridgely, lat. 44° 30′ N., lon. 17° 45′ W. of Washington, situated at the junction of the Minnesota and Rock rivers, says that the Sioux Indians "sometimes resort to

the external and internal use of various herbs, scarifications of the surface, and the vapor bath. Their principal reliance, however, in severe cases, is placed upon the conjurations of the 'medicine-men.' These proceed to the patient's lodge, usually at night, where they chant, beat their rude drums, rattle their gourds, and perform other magical rites. At a given signal they discharge their guns through the entrance of the lodge at the disease, or evil spirit, as it passes out of the body of the patient. But usually it returns again and again; and night after night it must be drummed out, until it is entirely banished, or, proving too strong for its opponents, it kills its victim.

"Their word, inadequately rendered '*medicine*,' is vaguely applied to every incomprehensible, mysterious, and, therefore, in their belief, spiritual influence. Dr. Daniels, the physician who resides among them, tells me that they have an almost idolatrous reverence for opium and chloroform, the 'great medicine.' The doctor and myself had occasion to perform several operations in which we used chloroform, the fame of this medicine soon spread abroad among the neighboring Indians.

"As in all primitive communities, the functions of priest and physician are based alike upon the supernatural, and constitute a single profession, of which the sages or 'medicine-men' are the exponents. The candidates for the honors of this fraternity are initiated within the medicine lodge, from which *laymen* are excluded.

"Very old persons are seldom seen among them; there is no doubt that a very large number of children fall victims to the 'hardening process,' to which they are unavoidably subjected, who, in civilized life, would have been reared to useful maturity. The diseases attendant upon privation and exposure are the most common among them, as phthisis, scrofulous affections, rheumatism, dysentery, diseases of the ear and of the eye.

"If civilization has made so little progress, Christianity may be said to have made none. There have been one or more missionary establishments among these Indians for the last twenty years. At the mission on the Yellow Medicine river, there is preaching every Sunday in the English and Dacota languages, and a day-school, in which Indians may be taught to read the Bible in their native tongue. But besides the white and half-breed employees of the Indian department, and their families, there are few or no attendants, either at school or meeting. The Indians themselves seem perfectly indifferent, and practically ignore the establishment."

Assistant-surgeon, S. Wylie Crawford, (1853) in his report on the medical topography and diseases of Fort M'Kavett, says of a band of

Comanches, that "the great majority die of pneumonia and affections of the chest. They are indolent, and, with few exceptions, physically weak. I believe the majority of the men die before forty. The women live longer. Their food is often insufficient. They sometimes live for days upon the fruit of the *carya olivæformis*, and frequently come into the post in almost starving condition."

Assistant-surgon, Israel Moses, (1852) in his report on the medical topography and diseases of Astoria, thus characterizes the Indians of the Pacific region of the United States, or Washington and Oregon territories: "All these several tribes speak the same language, follow the same customs, and resemble each other in manners, dress and person. The decay of the Indian tribes along the Columbia [river] has been fearfully rapid. A robust and numerous people, they have disappeared almost as by the wand of a magician. A severely fatal epidemic of measles carried off nearly half of the tribes in 1829 and 1830, which was followed by a congestive form of intermittent, that has appeared at various times, and created great havoc; but the scourge of these nations has been syphilis, and its sequent, scrofula, in the most fatal forms. Ignorant of any curative means, vast numbers have died from the primary disease, while in its secondary and transmitted forms, generations have perished unborn; glandular and eruptive diseases have carried off the infants; tubercular phthisis blighted their youths and brought their young men and matrons to premature old age. It is remarkable that very few can be found among the men who have not lost one eye by ophthalmia (syphilitic or gonorrhœal). Many are absolutely deformed by enlargement of the cervical glands, frequently suppurating, discharging, and forming frightful cicatrices. Hare-lip and cleft palate ore often seen; the idiopathic, and severer forms of malarial fever almost never. Abortion is common, and not unfrequently brought about intentionally. Child-bearing is a no more easy nor less dangerous process than among other females, etc. Should any abnormal circumstance arise, the child and mother, or most frequently both, are sacrificed. The infant immediately after ablution, is straightened out, tight swathed, with arms included, and placed on a board to be submitted to the process of flattening of the head. This is effected by pads placed over the frontal bone, inclining from the superciliary arch to the vertex; counter pressure being made by a pad under the occipital bone. The pressure is maintained during one year, when the bones having sufficiently ossified to retain the desired shape, the pads are removed. Infants do not appear to suffer by this pressure, which is kept up day and night; they nurse well and sleep comfortably. Among certain tribes side-pads are used so as to render the head pointed; but this is not followed by the Chinooks.

"In ordinary cases of sickness the aid of the medicine-man or doctor is called in. This individual is held in high estimation, and demands large fees for his advice and services; these are given at a vast personal risk, and somewhat upon the terms of their advertising professional brethren in large cities. Upon visiting the patient, and receiving his fee, the doctor goes actively to work to drive out the evil spirit from the suffering body, where it has assumed the form of a wolf, a beaver, or a large stone. The friends having formed a circle, a low and solemn incantation is commenced, accompanied by the regular beating of small sticks of wood, and gradually swelling in tone and rapidity of utterance until it becomes a howling, yelling, frightful succession of sounds. The doctor sitting at the bedside, swaying his body to and fro, keeping time to his song of invocation, begins to press and knead the breast and abdomen. As he becomes excited, he jumps up and dances about the lodge, with constant and most fatiguing gesticulation of the head, arms, legs, and body, until he either becomes frantic by excitement, or falls exhausted. Having by this time arrived at a just appreciation of the shape of the disease, he retires from the lodge, and after a suitable interval returns, and in a most dignified manner resumes his position and song. When thus a second time the necessary pitch of excitement is attained, he suddenly thrusts his hands beneath the blankets, and to the surprise, delight, and admiration of the assembled friends, jerks out, and casts among them, a dead wolf, serpent, beaver or stone, having thus successfully combatted the disease. Should the unhappy victim of Æsculapian art fortunately get well, the doctor remains in peaceful enjoyment of his professional gains. Should death, however, have knocked at the door of the lodge during these mockeries, as he invariably does in severe cases, the doctor has not only expended his time and labor for nothing, but now has forfeited his life by failing to restore his patient to health. If he can compromise the matter with the relations and friends of deceased, by paying his value, estimated in horses, blankets, canoes, or slaves, he redeems his own life."

Assistant-surgeon, J. M. Haden, (1853) in his account of the medical topography and diseases of Fort Steilacoom, lat. 47° 10′ 57″ N., one mile east of Puget Sound, says: "There are very few white settlers in this vicinity, and, so far, there have been very few cases of sickness among them. But with the Indians the case has been far different. They seem to be passing away so rapidly before civilization, that but very few years will elapse before they are entirely extinct. Wherever the whites settle, they disappear as if there was something in civilization incompatible with their existence. They say themselves, that in a few

more 'colds,' they will all have disappeared. They seem to possess very little stamina, and when disease once takes hold of them, they very soon succumb. During the summer months they are comparatively healthy, but during the winter great numbers die of dysentery and of pulmonary diseases. Since 1844, dysentery has been of annual occurrence during the autumn and winter months. Influenza prevailed as an epidemic in the autumn of 1851, and proved very fatal among some of the tribes. Syphilis and gonorrhœa exist to a great extent among all the tribes known to the whites. All the tribes on the Sound prostitute their women without hesitation, for gain, and healthy children among them are very rare. The scrofulous diathesis is very common, and great numbers die of phthisis pulmonalis. I have known almost entire families die of that disease within the last three years. One fruitful cause of disease among them, I think, is their manner of dressing. Very frequently an Indian may be seen one day dressed with coat, pants, two or three shirts, cap, and blanket, and, as they are inveterate gamblers, the same Indian may be seen the next day with no other covering than a shirt. In the treatment of disease they use a few indigenous medicinal plants, but their chief reliance is in the powers of their 'medicine-men,' whom they believe have the power to cause and cure disease. Almost all deaths are ascribed to the supernatural agency of some one or other of their 'medicine-men,' who are frequently assassinated by the friends of the deceased. The 'medicine-men' seem to have full confidence in their medicine, and they are generally regarded with great fear by the members of their tribe. An old practitioner in this vicinity boasts that he has had many enemies, but that his medicine has swept them all away."

Assistant-surgeon, Rodney Glisan, (1854) of Fort Arbuckle, lat. 34° 27′ N., four miles south of Washita river, and 76 miles north-west of its junction with Red river, says the roaming bands of Kickapoos, Witchitas, Keechies, Caddoes, Wacoes, Creeks, Cherokees, Delawares, Chickasaws, and Choctaws, "are almost universally afflicted with malarious fevers and their effects. I have seldom seen a case of intermittent fever among them without an enlargement of the spleen. Enlarged and indurated liver, and dropsy are by no means rare—all attributable to the frequency and long continuance of the disease."

Assistant-surgeon, John E. Summers, (1852) of the military post at San Diego, California, says that since 1840, the Indians of that place have been reduced from 800 to 300 or 400. In 1843, the small-pox killed much more than half of the Indians on the coast of California.

George Suckley, M. D., of the Eastern division of Exploration for a

route for the Pacific railroad, in his report to Gov. Stevens, dated Jan. 4, 1854, at Puget Sound, (p. 178) says that the Indians east of the Rocky Mountains suffer from inflammation of the eyes and consumption. "The Indians on the Columbia river, below Fort Colville, are rapidly becoming depopulated by the small-pox, intemperance and syphilis. During the past summer, the Lakemans and Wyampums buried more than half of their numbers."

The above described artificial malformation or flattening of the back-head, might be expected, upon phrenological principles, to obliterate or modify the organs or bumps appropriated to the animal propensities, as amativeness, philoprogenitiveness, etc. Yet these effects have not hitherto been observed from the flattening of the heads of savages during infancy. The phrenological differentiation between the flat-head Indians and others has not been established.

The great prevalence of consumption among savages, greater probably than is ever witnessed in civilized life, appears evidently due to the absence of the physical comforts, scanty food, defective clothing, bad lodging, quackery, etc., which tend to augment the ratio of mortality from this most fatal malady.

Physiologists find it difficult to explain the apparent incompatibility of the civilization of the Caucasian race to the condition and nature of the other races. Neither the Asiatic nor the American Indian readily yield to its influence, which, indeed, they generally repel, or if they do not repel it, they do not improve by it, but rather degenerate with an accelerating ratio.

By passing from the North American Indians to their antipodes, say Borneo and Abyssinia, not to name continents, the following tableau will show a striking parallelism in vital statistics, medical superstition, degradation and misery.

An Englishman, Sir James Brooke, who obtained the Rajahship of Sarawak, and an almost supreme power over the coast of Borneo for 700 miles, in the second volume of his Journal, (London, 1848) gives the following interesting account of his adopted people, and the benefits which they derive from a civilization repulsive to their natures. Mr. Brooke, who, at first unassisted by his own government, labored to civilize these barbarians of the Eastern Archipelago, killing them in war and ruling them in peace, naïvely asks: "Is it not sad to think that kingdoms are laid low, and the inhabitants oppressed and dispersed, whenever they come within the grasp of European civilization? How painful the reflection, that, wherever the white man has set his footmark, there the print of the native foot is obliterated, and that as a

tender plant withers beneath his tread, so wither the aboriginal inhabitants of the soil! Yet so it is; crime and misery, oppression and death have ever followed. At this day not one powerful Maylay exists, and the people are verging towards extinction.

"We have the picture of innocent, and of comparatively happy, nations—nations prosperous and hospitable, confiding in the honor and integrity of Europeans. We seek them, and they are no more. Whole nations have been extirpated; their arts and their very language lost in the march of this monster colonization which now is to confer every benefit. Our boasted territory in India, the best and most uprightly governed of any European possession—what advance have the people made during the long period of our sway? Are they more civilized than in the time of Baber and Akbar? Are their minds more enlightened? their political freedom more advanced? their religion less dominant or less bigoted? No. The mass are as ignorant as ever, as low as the African! Who that compares the states of the Peninsula, Java, Sumatra, Borneo, or Celebes, before and subsequent to the period of European domination, but must decide on the superiority of the former?"—(i. 12, 68, 69, 70, 71).

This very significant and sagacious statement made in 1848, is fully confirmed upon the ensanguined plains of India, where a few thousand Englishmen who have hitherto ruled more than one hundred millions of natives, are at this moment enacting one of the most horrible dramas known in history, in order not only to recover their authority, but to avenge themselves for the most savage indignities and indiscriminate butchery of men, women and children of the white race, blowing to atoms from the mouths of their great guns the disloyal, captured Sepoys.

Dr. Charles Johnson, M. R. C. S., (of the British Embassy at Shoa) in his *Travels in Southern Abyssinia through the country of Adal to the Kingdom of Shoa*, (2 vols. London, 1844) gives an account of the people of the countries through which he travelled or sojourned, from which it appears that the healing art corresponds to the low grade of civilization in that country—the lowest grade that claims to be in any degree christian, though strongly tinctured by Mohammedanism.

Dr. Johnson says that the most distinguished chiefs among the Bedouins, as Carmel Ibrahim, for instance, cannot, assisted by small stones, count as high as thirty.—(i. 372) The North American Indians cannot count much farther.

Dr. Johnson advises physicians traveling in the East, when called on for medical advice in bad cases, to prescribe a certain number of prayers

to Allah, or to give some written charm, "but never by any means administer medicine or perform the least operation, as the cure is always ascribed to Allah alone; but should the patient die, the doctor is considered responsible for his death, which is certain to be attributed to him or his medicines. To show how careful a person ought to be, I shall relate a little incident. A woman came for some medicine for her husband. I could not go to see him, as he lived ten or twelve miles from the Kafhilah. As the woman was very importunate for medicine, which, having no knowledge of the case, I at first refused; to get rid of her I opened a package of tea, and giving her a small spoonful, wrapped it up in a bit of old newspaper, and sent her away, with directions how to use it. The next morning, however, I found her making a terrible noise at the entrance of my hut, saying that her husband was a great deal worse, and all owing to the medicine he had taken. No one could understand the simple character of the remedy I had sent him, so all my explanations went for nothing, until I happened to see, sticking between her skin petticoat and her own black hide, the identical paper I put the medicine in, and snatching it from her waist, I found the tea still in it actually untouched. This evidence of the woman's imposture was conclusive, and she was taken away by those of her friends who just before were making loud demands of compensation for the injury they asserted I had done."—(i. 197). Dr. J. was obliged to avoid blood-letting upon the natives for these reasons: "I was prevented performing this operation by recollecting the case of an unfortunate Armenian doctor, who, in Suikin, two years before, had been sacrificed by the populace on account of the death of a patient whom he thus treated. The Turkish governor of the town, before whom the complaint was made of this treatment, in vain interceded in behalf of the doctor; his expostulations had no effect, and he was obliged to permit that which he was unable to prevent, and the accused was taken from his presence to the outside of the walls of the town, where he was barbarously executed in the usual manner, by the weapons of the friends and relations of his deceased patient." Mr. J. says this fact was officially reported by the European consuls to their respective governments, as well as to the Porte. (i. 397).

"Going nearer, to see what they were about, I was joined by Allee, who informed me they were doctoring Ohmed Mahomed, in their own fashion, by offering up prayers to Allah, and asked if I thought he would recover. As I had already given him three strong cathartic pills, and as his case was not a desperate one, I held out hopes to the distressed Allee, that probably the next morning his master would be quite

well. Having approached the circle, and dropt upon my heels, close behind them, I watched the proceedings of these devotee practitioners in medicine, and noticed that each one, in succession, recited in a low voice the first chapter of the Koran, and spit upon the patient, who, wrapt in a black Arab cloak, was lying at full length upon a mat, in the midst of them. Every one having duly performed this ceremony, the circle broke up, and coffee being brought, the good effect of the combined praying and spitting was acknowledged by all, when Ohmed Mahomed sat up and called for the first cup. I have seen them adopt the same means of relief for a sick camel."—(i. 401–2).

Barbarians, who make war the business of their lives, are, nevertheless, compartively powerless when brought into contact with highly civilized nations, whose superior scientific skill ensures certain victory. This, alone, is an argument sufficient to prove the vast importance of civilization. Indeed, knowledge multiplies to a great and indefinite extent the power of a nation, together with an increase of its population, by means of the increase of the physical comforts, the increase of salubrity, the increase of longevity, and other advantages which civilization carries with it.

Many causes inherent in savage life combine to prevent the natural increase of the species. Mr. Catlin, a great admirer of the Indians, who spent eight years among forty-eight of their tribes, says that it is very rare for an Indian woman to have more than four or five children; they never have ten or twelve as in civilized life. (ii. 228).

The perpetual wars of barbarians, and their practice of killing their prisoners, tend to repress the natural increase of the species. Assistant-surgeon Hasson, in his official report, (1856) says: "That the essence of war is violence, is truly the Indian's maxim; and the chivalrous sentiments of civilized warfare are to him but foolishness. His principle is to exterminate the whole race of his enemies, or, as his sign forcibly expresses it, to *wipe them out;* and neither old nor young, women nor children, are exempt from his fury. Sometimes a woman or child is taken prisoner, and then their lives are at the disposal of their captors. About a year ago, a Chippewa girl was taken prisoner by a Sioux warrior; but not proving as completely submissive as her master thought desirable, he subjected her to much harsh treatment. Her sufferings excited the sympathy of a half-breed trader, who carried her off clandestinely, and brought her to this post [Fort Ridgely], whence she was sent to her own country. Her Sioux master has been annoyed ever since by the upbraidings of his band, and his own regrets, at his folly in sparing a Chippewa to become the mother of warriors that will battle against his race."—(Army Stat. 70).

The uncivilized negro in his native Africa, is either stationary or declining, while the negroes of the Southern States of this Republic increase in numbers faster, and present a sanitary condition more favorable than any other portion of the human race. Of the small number originally imported into this country, probably few would have representatives now living, had it not been for the benefits of civilization in which they are partakers, though slaves. Without admitting that the ultra advocates or enemies of African slavery have shown it to be the best or the worst institution extant, it may be truly affirmed that it has advanced the physical well-being of the black race beyond any known parallel, and that the state of society in which the vital statistics of this race is most favorable, is that of slavery. Hence if mere theories, abstractions and dogmas be rejected, even provisionally, in order to deal with the facts which actually exist, it will be found that the psychical, vital, and sanitary conditions of the slave population as compared with their race at any æra in any other part of the globe, are immensely bettered, and further, that this amelioration grows out of the existing state of society in the south, be that good or bad, in which servitude is an element. So far the physiologist is concerned with the result, and must approve it as being the most luminous fact in the entire history of that race. He may wrangle on either side of the ethical question, and affirm according to his theory every virtue or every vice under heaven as inherent in the institution of slavery. The optimist is, of course, satisfied; and even the veriest utopian feels the ground sliding from beneath his feet when the steady current of utility sets in against his sandy foundation.

A slight geographical illusion may be illustrative of these views: Sierra Leone, the English colony of free negroes on the western coast of Africa, adjoining Liberia, founded in 1787, and peopled from time to time by blacks from London, Nova Scotia, the West Indies, from vessels in the slave trade captured on the high seas, and from other sources, contained in 1848 but 46,511 souls, more than half of whom were still heathens, notwithstanding the praiseworthy efforts of the Christian public of Great Britain to educate and otherwise aid them in obtaining the physical comforts, not only for their own sakes but that they might be the means of extending the blessings of civilization to the surrounding nations of benighted Africa.

In 1819, no less a number than 1,222 disbanded black troops together with their families emigrated from the West Indies to this colony. Seven years ago it was estimated that 20,000 liberated Africans had been sent to this territory. The population in 1851 had, however, declined more than 3,000 in three years.

The colony (now Republic) of Liberia, founded in 1820 by the American Colonization Society, as the asylum of free negroes and liberated slaves, has not been a very successful experiment, considering the unusually favorable auspices, the material aid, and the continuous supply of emigrants which have been attendant on this humane attempt to inaugurate a civilized prosperous nation, in the land of their ancestors. At present it is represented that the Liberians are suffering from a severe famine. If the blacks of St. Domingo after half a century of independence have not retrograded, they have given no satisfactory proof of a steady progress in art, science, industry, civilization, or ability for self-government.

The British people whose sincerity in favor of negro emancipation did not consist in words only, but led them to tax themselves to the amount of one hundred millions of dollars in 1834, to free the slaves and compensate their masters, now see and acknowledge in less than a quarter of a century, that their once rich West Indian Islands are declining in commerce, population and civilization. A semi-barbarism, if not total extinction, is foreshadowed in the present condition of the black race in these garden spots of the world. From 1834 to 1849, the liberated negroes and the immigrant laborers from Africa as records show amounted to 32,877; nevertheless, the numerical decline in many parishes was, and still is, constant and considerable. How much soever the moral law requires barbarism, physical misery, or extinction, the physiologist and vital statistician cannot, in such results, discover any ground favorable to the ends whereunto he labors.

Waiving the ethical question altogether, the physiological induction to be drawn from these facts is, that the black barbarians of Africa present the most favorable, vital, industrial and moral conditions nowhere except in the southern States, under the control of masters, and that, as yet, history has furnished no example to show that these favorable conditions would be still more developed, or even maintained without retrograding, by bestowing freedom upon four millions of slaves. A possible result of emancipation in the southern States, in the West Indies, and the African colonizations, is that of a final relapse into barbarism without a constant counteracting influence from without, as at present.

As to the physical, mental, moral and political equality of mankind in the abstract, the physiologist has nothing to do; his vocation leads him to view man in his concrete or materialistic and phenomenal manifestations.

The world has wrangled from the first and will ever continue to do so, concerning the abstract, or doctrinal. The actual, especially if based on utility is, for the most part, the criterion to which opinion will and must succumb. "As one star differeth from another star in glory, so it is" in actual condition of men which is never that of equality, in physical or mental power. Nature has made them unequal, though this, in itself is no argument for or against slavery; nevertheless, in a practical point of view the superior rules the inferior, either by the right of might, or might of mind, the equity of which is a question for metaphysical disputants to decide in their closets or in debating societies. Sanitarians and physicians are concerned with that which *is.*

With the reader's permission, a few words will be added concerning southern Africa, from a great traveler: In the proceedings of the British Association, at Dublin, September, 1857, (for the report of which I am indebted to Dr. Egan, of New Orleans,) Dr. Livingstone gave an account of his travels and discoveries in South Africa, the principal item in which is a statement concerning the *negro medicine-men* and their power to regulate the rain. (The late sanitary commission of New Orleans professed to do more: namely, to regulate both rain and wind, as also to render yellow fever an impossibility whether it originate here or be imported).

Dr. Livingstone's account is worth repeating not only as illustrative of the aim of this paper, but for its exposition of the medical science and climate of Africa:

" He said: I wish to give you, from the map before me, a brief view of the geography of South Africa, which you may find useful at the meeting, to be held this evening. You see here (pointing to the map) the Cape of Good Hope, and this intended to represent the Table Mountain, with the table cloth upon it. When the south-east wind blows, a mass of air is lifted up suddenly about 8,000 feet above the level of the sea; as the mass ascends the column above it becomes less, the air expands, the dilation of the air causes vapor to appear, the top of the cloud lies on the top of the mountain, it curls over and meets air of the same temperature, and disappears. This phenomenon, which occurs on one mountain, also takes place along the whole eastern coast of Africa. There is an extended table mountain, as it were, all along the east coast, and the phenomenon occurs in a most extensive manner. You will observe that along the coast of Africa there is a range of mountains until you come to the river Zambese. The prevailing winds to these parts is the south-east. Those at the Cape are only occasional, hence the Cape people only see the phenomenon of the table cloth

occasionally, but it occurs all along the eastern coast, and when the mass of air comes up to the top of the range of mountains and curls over, instead of meeting air of the same temperature—as at the Table Mountain—it comes over heated plains, and, of course, cannot give any moisture to those plains until the whole of the mountains are well saturated. I lived on the borders of the desert for some years, and had ample opportunity of observing the droughts. The people who live there believe that some persons have a power to make rain, and the mountain people are, many of them, called rain-makers. The people say: 'These men in the mountains have plenty of rain; they must have some charm, some knowledge of the medicine that cause the rain to descend constantly on their mountains.' It is a very difficult thing to convince them that they have no power whatever over the clouds. If you say to a rain-maker: 'Why these medicines have no power over the clouds,' they say: 'They have made rain for many years before you came here, and our women have become fat from the rain-making, which has caused plenty of rain to grow.' You reply: 'But I do not believe in your medicines;' they say: 'You do not believe in our medicines because you do not know them; God has given you, white people, a great many fine things which he has denied to us. He has given you clothing—we have none. You have wagons, and oxen, and guns, and gunpowder, and a great many good things, and he has sent you a book about which you are always talking. He has not given us these things. He loves you better than he loves us; but he has given us one little thing, and that is a knowledge of certain medicines by which we can make rain; and if you do not understand them you ought not to despise them, as we do not despise your wagons, and books, and guns.' You say: 'I do not believe, because they fail so often. You wait until the clouds come, and when you see it about to rain, then you take advantage of the fact and say you make rain.' They answer: 'You use medicines as well as we do. Sometimes, it is true, the rain does not come, but, sometimes you use medicines and the man dies; but you do not give up your medicines on that account.' These, and a number af other arguments, are known to all the people of the tribe, and the consequence is, that when you ask them not to trust in the rain-making, but to trust in God for rain, they say to you: 'Who would make a trial of starvation?' It is next to impossible to convince them. I have heard so many arguments in favor of rain-making, that I am almost a rain-maker (laughter). These arguments are not so very stupid either, and I must say that while in Africa I heard a good deal from home of people believing in spirit-rapping, table-turning, and other things just as wise as rain-making (laughter)."

The woolly-haired negroes of southern and western Africa, whence the 300,000 negroes were imported to North America, will, after a few more decennial periods, be inferior in numbers to their descendants in the southern States of this Republic. Col. C. H. Smith, an eminent anthropologist, who takes an unusually favorable view of the negro character, says, nevertheless, that "the typical woolly-haired races have never invented a reasoned theological system, discovered an alphabet, framed a grammatical language, nor made the least step in science or art. They have scarcely comprehended what they have learned; or retained a civilization taught them by contact with more refined nations. They have at no time formed great political states, nor commenced a self-evolving civilization. Conquest with them, has been confined to kindred tribes, and produced only slaughter. Even Christianity in Congo, has scarcely excited a progressive civilization. The worst slavery is his lot even at home, for he is there exposed to the continual peril of becoming also a victim, slaughtered with the most revolting torments. Tyrant of his blood, he traffics in slavery as it were merchandise; makes war purposely to capture neighbors; and sells even his own wives and children."—*Nat. Hist. of Man*, 196–7.

Hobbes, (born, 1588—died, 1679) an acute but not an infallible philosopher, admitted, long before the Declaration of Independence, "all men as being originally equal, having an equal right to all things, but as being taught by reason to sacrifice this right for the advantages of peace, and to submit to a common authority, which can preserve quiet only by being the sole depository of force, and must therefore be absolute, unlimited, and wielded by a single hand, by one man's will." In no civilized country does this equality or this absolutism exist in practice. Neither the Czar nor the Louisiana planter can find a better rule for state or plantation government than that announced more than a century ago by Buffier, who says: "I desire to be happy; but as I live with others, I cannot be happy without consulting their happiness." If Anaxarchus, who told Alexander the Great that his murder of Clitus was just, because every act of a ruler must be just, had resided in New Orleans, he might have seen two white men hung not long since, for murdering a poor slave-girl.

Mr. Carey's statistical account of the importation of slaves into the United States, reaches, in all, to 375,000 or 400,000; an estimate much higher than that of Mr. Gallatin and others. After deducting the number of slaves manumitted, absconded, and those sent to Liberia, and taking the period *subsequent to the prohibition of the slave-trade*, it will be found that the ratio of increase has not declined but augmented.

The increase in the decennium before the abolition of the slave-trade, 1790–1800, was 27 and a fraction per centum, while in the decennium *after* the trade ceased, 1810–1820, it was 29 and a fraction per centum; in 1820–1830, it was 30 and a fraction; in 1850, 28.81. (See U. S. census). In the West Indies more than two millions are missing from the number originally imported.

The want of the physical elements of well-being, as food and so forth, has done much in depopulating Ireland. The Rev. Mr. Marshall stated at the last meeting of the British Association that the population of Ireland, as taken by the census of 1851, had declined 1,623,739, leaving but 6,555,385; of this number 2,766,283 could neither read nor write.

The difficult question relating to the real or apparent incompatibility of modern civilization with the vital statistics of certain races, has not formed any part of the present inquiry. *Why* the American Indians and some other races decline in the presence of civilization has not been explained; but its rejection, not its actual influence, must be the principal cause of this apparent failure. It has been proved experimentally, that the African barbarians in the condition of slavery, as the latter exists in the United States, can be civilized. In their native lands, they have, since the historic period, that is for thousands of years, made no advancement, mentally or morally.

M. Guizot maintains, in his history of civilization, that no fundamental principle, comprehended in this general term, is ever received by the world unless first sanctioned by France. But with more justice, it might be said that civilization, or rather its extension, in a general sense, is the result or accompaniment of war, conquest, colonization, commerce, navigation, and practical science. What nation soever possess these dynamical elements in the highest degree, must be the greatest civilizer, because the most progressive.

Modern civilization is indebted to Christianity for its noblest principles. The influence of these principles interests the physiologist and the vital statistician no less than the statesman. Without attempting to show the special bearings of its code individually, socially and vitally, it is sufficient to mention the benefits it has conferred upon woman, by elevating her from a comparative state of slavery or degrading subserviency, to equality with man, so far as her mental and physical constitution demands. The abolition of polygamy has contributed to the well-being of society and the increase of the species. In a word, scientific medicine finds in a high civilization its best ally and firmest security, and if they are not identical, they are inseparably united, mutual friends, dependent on the same state of society, having a common aim in the well-being of mankind.

Art. X.—*Medical Schools:* By J. C. Nott, M. D., Professor of Anatomy in the University of Louisiana.

Having been recently called to the professorship of Anatomy in the University of Louisiana, my mind has, necessarily, been attracted more closely to the subject of medical education, and with the view of posting myself up fully in all the latest improvements for teaching anatomy, and of comparing the advantages and disadvantages of various points, I have occupied the past summer in visiting many of the more prominent schools in the United States.

The present number of this Journal is about going to press in a few days, and although I have been but twenty-four hours in the city and have much else to occupy me in making arrangements for a change of residence, I have promised the editors that I will throw together hastily, the impressions which have been made on my mind, hoping at some future day to return to the subject more in detail.

It has been a prevailing idea, that the climate of New Orleans and other southern cities is an insuperable barrier to the full success of medical schools, and I confess that this prejudice has been very strongly rooted in my own mind. Though familiar with the fact that the history of medicine from the earliest epoch to the sixteenth century belongs almost exclusively to hot climates, yet the medical schools of temperate latitudes in our day, have so far outstripped the ancient seats of learning, that I had began to think that the sceptre of science, as of political power, had passed into the hands of those northern peoples who have of late been governing the world.

When I turned my mind more closely to the subject, and analyzed the causes of the downfall of ancient schools, I soon found that there was something at work more baneful than *climate*, viz.: misrule and indolence. Egypt was the most ancient seat of medical science, both before the conquest of the Greeks and during the existence of her famous Alexandrian school. If we follow the map around the Mediterranean Sea, we find that the march of medical science for ages was still exclusively through southern climes—Arabia, Greece, Rome, and in the middle ages, Italy, in succession held all of medical science known to the world. But the beastly Turk in Egypt, Arabia and Greece, and the despotic Austrian in classic Italy, have crushed out not only medical, but every other department of science and literature. If there are no Hippocrateses, Galens or Celsuses—no Homers or Virgils—it is not because genius is extinguished in these races, but it is because despotism has placed its foot on mind and body too.

The great difficulty, to my mind, against which southern schools had to contend, was the difficulty of pursuing dissections during our mild winters, for not only is the putrefaction of bodies disgusting and unwholsome, but it is inimical to the successful pursuit of minute dissection. For without the aid of antiseptics, a body will keep in Boston during the winter, a month, while in Charleston or New Orleans, there are times when you could not work on one for a week.

Anatomy is the ground work of the science and art of medicine, and other things being equal, the student should always seek that school where anatomy is best taught. It is vain to talk of learning physiology, pathology, surgery, obstetrics, or practice of physic without anatomy, and it is infinitely better to have no doctors at all than to have incompetent ones.

Those climates and those localities alone which afford the fullest anatomical advantages, can meet the requirements of the profession, and the student who is really conscientiously seeking to prepare himself for the arduous and responsible duties which await him, should keep his eye steadily on this point and not be gulled by newspaper puffs, circulars, and false promises. I repeat to the medical student, if you desire to effect anything useful or noble in our profession, go where you can learn thoroughly anatomy.

My doubts are now entirely removed with regard to the appropriateness of the climate of New Orleans for anatomical investigations, for we now have means by which we can preserve bodies perfectly in any weather, an indefinite period of time. I have just returned from Philadelphia, where I have received from my obliging friend Professor Leidy, much valuable information, and seen bodies preserved during mid-summer by means of antiseptics, as perfectly as they could be by the climate of Moscow or St. Petersburg. I dissected myself, in the private room of Professor Leidy, a body prepared under his direction, for two weeks, during the hot weather of September, and it was as sound and free from putrid odor the last day as it was the first—nay, more, the brain, nerves, and other soft tissues were rendered much more firm than natural and the rapidity and minuteness of dissection was much facilitated.

No city in the United States can at all compare with New Orleans in point of abundance of material for the anatomical student. We can command bodies for dissection to any extent at an expense far below any institution I am acquainted with, in fact, at the moderate cost of transportation of subjects to our rooms.

The facilities afforded for clinical instruction in the city of New Orleans are not equalled anywhere in the United States, and surpassed, if at all, by few places in the world. I am writing in haste and have not time to look up statistics of later date, but have beside me the "Report of the Board of Administrators of the Charity Hospital for 1850," in which the statement is made that the number of admissions into this institution for the years 1850–51 were respectively 18,476 and 18,420. There has been no change in the administration since that time, and the usefulness and interest of this great establishment has never flagged. The number of patients fluctuates from six or seven hundred up to fifteen hundred, and when we state that it is under the superintendence of such "ministering angels" as the *Sisters of Charity*, nothing need be added to illustrate the internal management of this charity.*

We have already stated that the early history of medicine, down to the middle ages, is to be sought exclusively among the people of warm climates; in fact, it is not until the seventeenth century that Germany, France and Great Britain began to take an active part in its cultivation.

Although we must gratefully acknowledge our indebtedness to Hippocrates, Galen, Celsus and other great names of antiquity, so great were the prejudices and difficulties which opposed the study of anatomy, that it was not till the sixteenth century that dissections of the human body were common, and it is to classic Italy, with a climate similar to ours, that we must turn not only for the revival of medicine, but for that solid advancement in anatomy which has laid the ground work of rational medicine. The schools of Padua, of Pisa, of Rome, and of Florence will long be pointed to as a bright galaxy in our history; and the names of Fallopius, Eustachius, Arantius, Cæsalpinus, Fabricius, Spigelius, Vasalius, of Scarpa, Morgagni, Mascagni, Valsalva, Malpighi, Spallanzani, and many other Italian names will stand out in honorable relief, as long as medical history is written and read. These laborers too have done their work in a climate not more favorable to anatomy than ours, and that without the immense advantages afforded us by modern chemistry in preserving bodies.

The museum of the University of Louisiana is unrivalled in this country. We need only state that besides numerous models from the best artists in France and England, we have duplicated the celebrated

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* "The number of medical cases treated during the last year (1856) in the Hospital, was about 6,450; the surgical patients numbered 2,450; and the obstetrical cases, and those of special diseases of women and children about 500."—*Annual Circular, Medical Department, University La.*

collection of the Grand Duke of Tuscany at the Academy of Anatomy in Florence, which is unsurpassed—the latter collection alone gives more than 350 dissections, representing in detail the whole anatomy of the human system, together with many illustrative models of comparative anatomy.

But there is another view of the subject which should give great weight to the value of southern schools. The fact is well known that the diseases of warm and cold climates differ as much as do their fauna and flora. It has been said that a young man should not go to a medical school with the expectation of learning the practical details of his profession, but simply to ground himself well in those fundamental principles which are to guide him in after life; and that this kind of knowledge can only come with the routine of bedside experience. This is to some extent true, for in reality a medical student, after the ordinary routine of instruction, has learned little more than *how to learn;* but it is absurd to say, other things being equal, that there is not an advantage in a southern over a northern education, to those who are to practise in malarial districts. Those professors who have been for twenty or thirty years treating daily the diseases of the south, should certainly be more competent to instruct southern young men than teachers who have little or no experience with our diseases. I have never seen a lecture or essay from the pen of a northern lecturer on remittent or yellow fever that I could read half through, for I could see internal evidence at every step, that he was talking of things at secondhand, and about which he knew nothing. A northern lecturer would laugh at the idea of a New Orleans physician attempting to teach him anything about pneumonia, so different is the type of the disease in the two latitudes.

Still I would say to the medical student, go to that school where you can learn most anatomy, physiology and pathology, for these are the ground works without which a really enlightened and practical physician cannot be made, north or south, and it would be far better to annihilate the medical profession at once, than to fill the country with licensed quacks who are a curse instead of a blessing to society.

If, then, New Orleans possesses all the appliances for medical instruction in such extraordinary profusion, why, let me ask, can she not rear up a medical school, or schools equal to any in America? It is not my desire to make invidious comparisons, or to say unkind or ungenerous things of other schools. I should despise myself if I could be swayed by such feelings or such motives. The field of science is a Republic equally open to all; and with the population of the United States rapidly

increasing, as it is, there will be room enough, and patronage enough for all those schools so located as to have the real substantial advantages necessary for medical instruction. All that should be asked by a school is "day light and fair play," and I for one shall always be ready to give the right hand of fellowship to those who pursue science, not for filthy lucre or false fame, but who, like men of honor, are willing to work in the cause of humanity, under the guidance of a fair, gentlemanly and scientific spirit.

New Orleans at this moment affords ample facilities for instructing 1000 medical students; facilities are increasing yearly; and so far from deprecating honest rivalry and emulation, I shall be glad to see it, for the great ends of science and humanity will by such means be the most surely attained.

Why, let me again ask, should not New Orleans become one of the leading seats of medical instruction in the United States? There is but one answer to this question—*all depends upon the medical teachers of New Orleans*—their energy, industry, and fidelity to the great trust reposed in them—if the schools fail it will be from the indolence, incompetence, and want of character of our teachers.

In this respect we may well learn useful lessons from some of our brethren of the North. I have spent a considerable portion of the past summer in Philadelphia, the field of my early professional studies, and I still feel a pride in my alma mater which has been the mother of medical science in America. I could not but admire the patient and enlightened industry with which this school, with its worthy rival (Jefferson School) have been laboring on from year to year in the good cause. May they long preserve the high position which they have so nobly earned, and remain as beacons to stimulate our exertions in the cause of science.

Art. XI.—*Cases of Sporadic Yellow Fever.*

New Orleans, September 29th, 1857.

Dear Sir—Having been informed that you intend to write an article on the yellow fever of 1857, I take the liberty to send you the notes of a case that came under my treatment.

Respectfully your obedient servant and grateful former student,

Doctor James Jones. F. B. ALBERS, M. D.

Joseph Linder, 22 years old, a Swiss; has resided in New Orleans four months; has been employed in an ice house all the time, situated near St. Mary's Market; he almost never left the house, and had not been near the shipping.

He was attacked with a chill followed by high fever, and pain in the back and head, on Monday night, July 13. He went to the house of a sister, No. 78 Julia street, where I first saw him on Wednesday, July 15th, having been sick for thirty-six hours. Cups had been freely applied to the back, head and epigastrium by his friends; the bowels had been opened by castor oil.

His face was flushed; skin very hot; pulse 120; tongue hot to the touch and loaded with a white fur; great thirst, and a little nausea.

Thursday, July 16th. Sleepless night; tongue red; face and eyes very red; skin intensely hot; very high fever.

Friday. Bleeding from the gums; the other symptoms about the same; late in the evening threw up a quantity of dark colored fluid, resembling a strong decoction of coffee.

He died very quietly a little before midnight.

The treatment was as the case indicated.

Autopsy eight hours after death, assisted by Drs. B. Dowler, A. C. Young, and J. P. Barbot.

The body yellow, particularly the extremities; muscles very rigid; stomach contained about six ounces of a dark fluid; liver of a florid yellow color; gall-bladder enormously distended, with a yellowish colored fluid; the bladder nearly full of urine; lungs collapsed and healthy; heart somewhat enlarged, its walls darker than usual, and contained a quantity of dark coagula.

Cases Reported by Mr. J. P. Barbot.

Cases from Mr. Mehl's beer house, s. e. side of Girod street, near Tchoupitoulas street.

1st. Christian Miller; German; aged 26. Was in this city all last winter till June, working on the levee. In June, went to work on the Mobile and Ohio railroad. He went thence to work in a sawmill on the Mississippi river, and left it to come down here. Arrived here on the 12th of August last, and left again as deck hand on a steamboat for Napoleon, Arkansas. On the passage up was taken sick, which induced him to return. He arrived here for the last time on the 17th inst., and was taken at once, directly from the steamboat to the Charity Hospital, where he died on the 19th, with black vomit.

2d. William Adam Straser; German; aged 21 years. Resident two years in the United States.

Went last spring from Cincinnati to Franklin, La., where he remained all summer. He arrived in New Orleans from Franklin on the 12th of

September (inst.); was attacked on Friday, the 18th; taken to the Charity Hospital on the 20th, and died there on Tuesday, the 22d, at 7, A. M., having had black vomit.

3d. Albert Muëller, (joiner); German; aged 22 or 24 years; in the United States about four years; comes down here every winter to work and leaves again for the summer. Arrived here from St. Louis three weeks ago.

Was attacked on Monday the 21st., and taken to ward 13, Charity Hospital. (Was seen before being sent to the hospital by Drs. Wetzel and Henderson, as well as myself; considered by these gentlemen a case of yellow fever).

From Mr. A. Rose's, s. e. corner of Girod and Tchoupitoulas streets, next door to the above.

1st. Francisco Sabarle; Sicilian; aged 26 years. In New Orleans one year; oysterman, running in an oyster boat in the Gulf. Was attacked here on the 15th of September, taken to the Charity hospital on the 20th, and died there the same day. Black vomit was found in the stomach.

2d. Mateo Giacolome, Sicilian; aged 26; in the same room with the preceding; was attacked on Friday, 18th inst.; is now attended by Dr. E. C. Hyde; is likely to recover.

From Mr. Lyon's, shoemaker, s. e. side of Girod street, between Tchoupitoulas and Commerce streets, (next door to Mr. Mehl's.)

1st. James Carroll, Irish; aged 18; four years in the United States, and for the past year in New Orleans; has not left the city in that time. He died on Sunday, September 20th, in the fifth day of his illness.

This young man was not attended on by any physician; but on the day before his death was brought up to Dr. S. Woods', Apothecary, on Tchoupitoulas street near Julia, to be cured of what his friends called jaundice. Dr. Woods declined doing anything for him, alledging that he was too low.

Carroll died the next day, and Dr. Woods without making the proper inquiries, but satisfied with the friends' statements, delivered a certificate of "death by jaundice." He afterwards ascertained that the deceased had had no secretion of urine for four days before death, had had hæmorrhage from the gums and nose, and had vomited matter like coffee grounds.

This young man's sister, Ann Carroll, (from the same house) died in the Charity Hospital, on Friday, 11th of September, of what was diagnosed typhoid fever.

From Mr. Harding's grocery store, s. e. corner of Girod and Commerce streets

Mrs. Eliza Stanton, Irish; aged 44; has resided five years in St. Louis and for the last ten months in New Orleans; has not been out of this city in all that time.

She was attacked on Thursday, September 17th, and died on Wednesday, 23d, having had black vomit and hæmorrhage from the gums. Was attended in the last two or three days of her illness by Dr. Ford.

[These cases are deemed important in relation to the question of the domestic or imported origin of yellow fever, being among the first of the season. Dr. Albers' case which was witnessed by several physicians during the patient's life, and was confirmed by a postmortem examination, is supposed to have been the first case thus unequivocally established, excepting one which occurred in the practice of Dr. Mercier, a memorandum of which the Doctor has kindly furnished, as follows:

Dominique Maillot, Frenchman, aged 19 years, in New Orleans for the last two years, without leaving the city, living in 7th street, 4th District, between Constance and Annunciation; goes to the old French market, 2d District, every morning; goes back home at 12 o'clock, M., every day; never went on board a ship nor near the shipping; very temperate habits; never was sick. Was taken ill on the 17th of June, 1857, presenting all the symptoms of yellow fever; was transferred to the Circus street Hospital on the 18th, and died on the 26th, at half-past 6 o'clock, A. M.

The progress of the case from first to last, with the exception of black vomit, was that of yellow fever. He had suppression of urine for thirty-eight hours before death.

Post-mortem examination the same day, at 2, P. M., eight hours after death. All of the abdominal organs were in a high state of congestion. The black vomit fluid was found in the œsophagus, stomach, duodenum and the upper part of the small intestine.

Dr. Mercier, desirous that the President of the Board of Health should examine the case both before and after death, sent invitations to that effect.

The Board of Health reported a fatal case in August.

It is hoped that the remaining space in the *N. O. Med. and Surg. Jour.* will permit the insertion of further mortuary details now in preparation by Dr. Chaillé. B. D.]

PROGRESS OF MEDICINE.

Art. I.—*Phthisis Pulmonalis.*

1.—*On the presence of elastic pulmonary fibres in the sputa of phthisical patients, as a certain sign of the existence of a vomica:* By J. L. C. Schroeder Van Der Kolk, Professor in the University of Utrecht. Translated from the Dutch by William D. Moore, A.B., M.B., T.C.D., Honorary Member of the Sweedish Society of Physicians.*—Physicians have long felt the importance of discovering a certain sign by which the sputa of a phthisical patient might be distinguished from those coughed up in a chronic catarrhal inflammation of the lungs; and, as a copious formation of pus occurs in the former, the attention of observers has been chiefly directed to the acquirement of an adequate distinguishing mark between purulent sputa, and those containing only thickened mucus. It is well known that even Hippocrates† has stated that pus, when burned, emits a fœtid odor, and that it sinks in sea-water, while mucus does not.

This inquiry, not only as to whether it may be possible, in reference to sputa, to ascertain whether they consist solely of condensed mucus, or contain pus, but also whether we might be able in them to distinguish the matter of pulmonary tubercle, and so be in a position to decide on the existence of a vomica, and to recognize phthisis pulmonalis in its commencement, has given rise to very many different experiments and propositions, of which, unfortunately, not one has, as yet, led to any certain result.

Formerly it was attempted to discover the difference chiefly by chemical means; and it is well known that our Brugmans thought he had attained this object, inasmuch as he believed that pus was capable of undergoing acid fermentation, while mucus was not.‡ But the mistake was here committed of seeking a distinguishing mark between pure pus and pure mucus, and endeavoring to make this applicable to purulent mucus. Pure pus is, however, so easily discriminated from pure mucus by the eye alone, that in ordinary practice we need no chemical aid for this purpose; while, on the contrary, experience shows, that the several means of distinction are wholly useless, when applied for the purpose of

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* Several years have elapsed since I first became acquainted, through the medium of Herre Ekströmer's Sweedish translation, published in the *Hygiea* for January, 1850, with the valuable observations of Professor Schroeder van der Kolk, upon the above important subject. These observations have been briefly alluded to in the 22d volume of the *Dublin Quarterly Journal of Medical Science;* and very fully in the second volume of the present series of this Journal, in a review, by Dr. Banks, of Dr. Biermer's work, "Die Lehre vom Auswurf;" but considering it desirable that we should possess a translation *in extenso* of the memoir in question, in the absence of any information as to where the original was to be found, I applied to the distinguished author himself, and I am glad to avail myself of this opportunity of expressing my thanks to him for the kindness and readiness with which he at once sent me the last remaining copy of his essay, which, it appears, was originally published in the *Nederlandsch Lancet*, second series, first year, seventh part.—Translator.

† *Coacæ prænot.* Ed. Linden, T. 1, p. 255.

‡ Brugmans, *Dissert de Puogenia*, p. 215. Gron. 1785.

diagnosing with certainty, pure thickened mucus from mucus in which pus is at the same time present, since, in the several degrees of admixture, the tests are not sufficiently accurate. I shall here mention only Grasmeijer's test,* which longest maintained its ground, namely—mixing pus with a solution of carbonate of potash, whereby it is converted into a gelatinous mass, while no such change is produced with mucus. Or Huenefeld's † proposal, to boil the sputa with sal ammoniac, by which they were said to be coagulated, if pus were present. Neither of these methods, however, affords a certain test. Equally little reliance can be placed on the fact advanced as a test by Gueterbock, ‡ that pus, in virtue of its fatty contents, burns with a flame, whereby, he says, we may distinguish purulent sputa from any others; for this character is by no means sufficiently well marked, and fat is also met with in thick bronchitic sputa. I have myself found the mucus on the inner surface of the finest ramifications of the bronchi, in an otherwise perfectly normal lung of an elderly woman who had died of hydrothorax, tolerably largely mixed with fat, although no trace of inflammation was perceptible in this case. Brett states that he has found acetic acid to be capable of coagulating mucus, but not pus. However, as mucus is always present in purulent sputa, this agent will not enable us to distinguish the latter. The subject will be found more fully treated of in the works of J. Vogel,‖ Gueterbock § and others.

Subsequently another method has been proposed, and it has been thought that the improvement of the microscope should furnish a means of distinguishing, with greater certainty, pus from mucus. This inquiry has given rise to a great number of essays on the form in which pus exhibits itself under the microscope, and on the difference between pus and mucus. Thus, after the discovery in pus of peculiar, more or less granular corpuscles, it was thought that through these the presence of pus could be accurately determined; and Vogel asserts, in his above-mentioned work, that we can, with the aid of the microscope, even in a mixture of pus and mucus, decide, of each smallest particle, though invisible to the naked eye, whether it is pus or mucus.¶ This writer, however, seems not to have observed that the same corpuscles occur also in inspissated mucus, and are not wholly absent even in healthy mucus from the mouth. Thus I have always found them, though in small quantity, in the saliva. They agree so closely with the corpuscles present in pus, that they cannot, indeed, be distinguished from the latter; though they may be somewhat more transparent—yet are they so like in form and size, that when mixed with pus corpuscles, it is impossible to distinguish them, and both, therefore, appear to belong to the same kind of formation. Simon** gives a tolerably good representation of them, taken from nasal mucus and thin bronchial mucus. Gluge ††

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* *Abhandl. v. Eiter*, etc., Gött. 1798, p. 59. † See Berzelius, *Thierchemie*, p. 599.

‡ Gueterbock, *De pure et granulatione.* Berol., 1837, p. 25.

‖ Vogel, *Ueber Eiter; Eiterung*, etc. Erlangen, 1838. pp. 96 et seq.

§ Loc. cit., p. 3 et seq. ¶ Loc. cit. p. 108.

***Med. Chem.*, 1842. T. 2, st, 2, fig. 15 and 16, p. 310.

†† *Anat. micr. Unters.* H. 1. Mind. 1838, p. 26.

says that mucus-globules are always one-fourth larger than pus globules, and that they never exhibit any points (granulations?) I have often met them of the same size as pus corpuscles, and always found them granular. Henle * makes the same figure represent both pus and mucus corpuscles,† so that it does not in fact appear whence they are taken.

Buhlmann‡ also acknowledges that these mucus corpuscles render the idea of pus globules uncertain and doubtful. He considers them, however, to be exudation globules, arrested at a certain stage of their formation, and says that they occur not only in nasal and in bronchial catarrh, but also very plentifully in incipient tubercle.‖ These inflammatory globules are, however, usually larger, and exhibit a more granular appearance. Vogel gives a very good representation of them,§ and found them also in tuberculous matter taken from the lungs.¶ In inflammation I have often met them; they can very easily be distinguished from pus and mucus globules.

If we now put together the different modes in which pus globules have been described and delineated by different writers—of which Buhlmann** gives a good review in his above-mentioned work—that they occur also in a slight catarrh, and that even in chronic catarrh, the purest pus may be secreted, entirely agreeing with phthisical sputa,†† we shall be convinced that they cannot be with any certainty employed as a distinctive mark of suppuration, or of an incipient vomica; so that in my opinion they incorrectly bear the name of pus globules.

Other writers have, however, thought that in the sputa of phthisical patients, tubercular matter can be recognized under the microscope, and that thus a decision can be arrived at as to the existence of tubercular suppuration in the lungs, and the formation of an incipient vomica.

Vogel has represented as such, a granular mass which often occurs in the sputa of phthisical patients, and which he considers to be the product of tuberculous matter. This is found also in tubercles in dead bodies; and on this Vogel ‡‡ grounds his supposition. Buhlmann,‖‖ however, correctly observes, that this granular mass occurs also in chronic catarrh, and is therefore far from characteristic. It consists, according to him, of coagulated albumen globules, which have united into groups. Gluge §§ also describes the same, and says he has constantly met this granular mass, with compound inflammatory globules and pus corpuscles, in tubercular pus. In the same manner, Vogel,¶¶ in his late work, gives

* *Allg. Anat.* p. 155, etc., tab. v. fig. 22.

† *Allg. Anat.*, p. 939, and explanation of the figures, p. 1025.

‡ *Beyträge zum Kenntniss der kranken Schleimhaut der Respirations organe*, Bern. 1843, p. 30.

‖ Loc. cit. p. 43.

§ J. Vogel, *Icones histologiæ pathology.* Lips. 1843, tab. iii, fig. 13 and 14, B.

¶ Loc. cit. tab. xv., fig. 3. c.

** Loc. cit. p. 19 et seq., tab. i. fig. 14, 18—20; Tab. ii, fig. 1—11, 20, 21; Tab. iii, fig. 1—6,

†† Buhlmann, loc. cit. p. 39.

‡‡ Vogel, *über Eiter*, etc., p. 112, fig. 10.

‖‖ Loc. cit. p. 59.

§§ *Anat. Microscop. Unters.* Heft. 1. Minden, 1838, p. 21, tab. xi., fig. 5. Heft. 2, p. 181.

¶¶ *Icones Histolog. path.*, tab. xv., fig. 111.

a representation of tubercular matter, taken from a tubercle. This consists, according to him, of smaller cells, larger inflammatory globules, and a granular mass.

As, however, these forms seem to occur as products of inflammation in sputa, where only chronic catarrh is present, they can be of no use in leading us to a conclusion as to the existence of tubercular matter.

Gruby* appears to have fallen into a much more serious error ; thus, he describes as characteristic of tubercular matter, globules said to occur in the sputa, with concentric spiral rings (sphæræ lenticulares,) which are nothing else than badly drawn starch granules from food which has remained between the teeth, or in the throat. Of the same nature are the expectorated pulmonary cells represented by him, which have nothing in common with the form of pulmonary cells, and by their regular rhomboidal shape at once betray themselves as vegetable cells: so that I am very much surprised that Buhlmann† has not recognized them as such, and that he has drawn them again. He says he has seen something of this kind, but that they must have been very much altered by the suppurative process; wherefore he expresses some doubt as to Gruby's beautiful figures. Gruby's sphæræ lenticulares he could not find; and he states that he is quite uncertain as to what Gruby has seen,‡ although Simon || a year before, discovered that they were nothing but starch granules, which he said immediately turned blue by the addition of iodine. Dr. Gobée has, however, lately described them again at considerable length, and has given various drawings of them.§ He says he once saw them in the sputa of a peripneumonic patient, but took them for something accidental. In actual tuberculosis, he had never seen them. We may safely look upon them as starch granules, having nothing in common with the sputa of tubercle.

Gerber describes many kinds of tuberculous matter, as albuminous or unorganized, fibrous and hyaline tubercle, cellular tubercle, fibrocellular tubercle, and, finally, melanotic and organized tubercle. Buhlmann ¶ observes on this point, that in numerous examinations of tubercle, he found no other constant product than albuminous globules, or granules. The various kinds described by Gerber he could not find; neither have they occurred to me. Dr. Gobée says he has observed such organized tubercular matter in the sputa of a patient; and he represents oblong cells, which he thinks are elementary cells, in their transition to form fibres,** and actual fibres, having most conformity to recently developed connective fibres.†† If we examine an air tube and its bronchial ramifications in a healthy lung, we shall soon find that the oblong, boat-shaped, bottle, and thorn-shaped cells of Dr. Gobée are nothing else than more or less destroyed portions of the ciliated epithelium with

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* *Gruby, Observ. Microscop.* Minden, 1840. See also Buhlmann, loc. cit., tab. i., fig. 10, 12, 15, 16.

† Buhlmann, l. c., p. 65, tab. i., fig. 17.

‡ Buhlmann, p. 59, et seq.

|| Simon, *Med. Chemie.* Berlin, 1842. Bd. ii. Heft. 2, p. 316, note 2.

§ Dr. C. Gobée, *Tijdschrift voor wetenschappelijke Geneeskunde*, D. ii., st. ii., pp. 108, etc.

¶ Loc. cit. p. 60.

** Gobée, loc. cit. p. 113, fig. D.

†† Loc. cit. p. 114, fig. D.

which the air passages are lined even to their finer ramifications. Of the same nature appear to be his recently-formed fibres, differing completely from the fibres of which I shall hereafter speak. Dr. Gobée, however, thinks that out of the albuminous and fibrinous matter exuded in the lungs, his oblong cells are formed as elementary cells, which pass into actual connective tissue, whereby an obstruction, and through the new formation of connective tissue, an actual enlargement of the pulmonary vesicles must take place, giving rise to asthmatic phenomena.* We can, however, in the present state of our knowledge of the development of connective fibres, scarcely admit their new formation in the sputa.

I am also greatly surprised to see that Dr. Gobée states as a peculiarity, the formation, after the addition of acetic acid, of a great quantity of long, thick threads, which so increased on further addition of the same re-agent, that the entire presented the appearance of a membrane composed of connective tissue. It is, however, a well-known fact, that mucus solidifies on the addition of acetic acid, and thus assumes under the microscope the form of thick transparent threads, and even membranes, which I have often also observed in nasal mucus, which have no reference to the formation of tubercle, and possess no peculiarity, except that they may easily mislead an incautious observer.

Lebert† gives, as a peculiar characteristic of tubercular matter, the presence of irregular oblong corpuscles of 0.05 millimetre, possessing no nuclei, as is shown by adding acetic acid, and which, together with many molecular granules, are agglutinated by a clearer matter. In order to see these well, the tubercular corpuscles should be thinned with a little water, as otherwise they are too compact. They are said to afford the most certain distinctive make of tubercular matter, as pus-corpuscles possess nuclei, and measure, on an average, ‡ 0.01 of a millimetre in diameter. When these tubercles soften, the tolerably solid matter which held the corpuscles agglutinated in the tubercles, begins to grow fluid; the tubercular bodies become free, enlarge, and assume a more spherical shape.‖ If pus globules intervene, these come, according to him, not from the tubercular mass, but from the surrounding parts. The tubercular globules, however, rapidly dissolve, especially if they are mixed with pus;§ and this is, according to Lebert, the reason why they are scarcely ever met with in the sputa, in which, he confesses, he has never, with certainty, observed them.¶ Hence, it follows, as a matter of course, that these corpuscles, at first described by Lebert as so characteristic, have no diagnostic value; and he himself also acknowledges that the microscopic examination of the products of expectoration in phthisis, can contribute nothing to clear up the diagnosis, especially when the disease is still in the incipient stage.

From all this we see that neither chemical re-agents, nor the microscope, have furnished us with the means of distinguishing pus from mu-

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* Gobée, l. c., p. 114, et seq.

† Lebert, *Physiologie pathologique*. Paris, 1845. T. 1, p. 352, pl. viii., fig. 1, 2.

‡ Lebert, loc. cit., p. 356, 358.

‖ Lebert, loc. cit., pl. viii., fig. 4 and 5.

§ Lebert, l. c. p. 366.

¶ Ibid. p. 413.

cus in sputa, of recognizing the presence of pus in mucus, or of demonstrating that of tubercular matter.

Having been, however, for some time engaged in the examination of the sputa of phthisical patients, I discovered therein peculiar fibres, which, by their special course and characteristic form, I recognized as elastic fibres surrounding the air cells, and therefore appearing to me calculated, in the absence of any other distinguishing mark in the sputa, to afford a very characteristic sign of the existence of a vomica. Having thus had my attention directed to the point, I found them in all the sputa of phthisical patients which subsequently came under my observation, and, indeed, in the most opposite stages of the disease.—*See Ranking*, 70–5.

When we consult the observations of other writers on this subject, it is strange that the presence of these fibres has not attracted more attention. Investigators in general seem to have given themselves more trouble, though unsuccessfully, to look for certain distinctions between mucus, pus, and tubercular matter, than to examine closely the several forms and peculiar occurrence of these elastic fibres; and I am greatly surprised that, although the latter have been observed by some writers, no one has given an exact representation of them as they variously occur in the sputa. Simon appears to be one of the first to mention their presence in the sputa of phthisical patients; but he says no more on the subject than that he has seen more or less numerous fat globules, and some very fine tubes or fibres ramifying like vessels; while the representation he gives of these fibres is so incorrect, as rather to give rise to the suspicion that something had been accidentally mixed with the sputa observed by him, than that he had seen real elastic fibres of the lungs.* The plate given by Simon, of the tissue and vessels of the lungs, appears to represent nothing else than epithelial cells and fat.† Gluge,‡ to my surprise, says he never met fibres in tubercular matter. The drawings given by Vogel, in his excellent *Icones Physiol. Path.*, Tab. xv, xvi, and xvii, are important, where he represents these elastic fibres, as they occur in tubercles, taken partially undissolved from the lungs of a dead body, very well, but perhaps on rather too large a scale. He does not, however, represent them as they occur in the sputa, where their form and direction are often very different from what they are in the pulmonary cells. Thus in the sputa they are often broken up into smaller portions; yet they always retain their peculiar distinctive marks. Vogel ‖ observes that the occurrence of such dead pulmonary fibres in the sputa, is an equally certain and important sign that tubercular destruction of the pulmonary tissue has already set in. He does not, however, say whether their occurrence is constant, or whether they may also be absent in the sputa of phthisical patients.

Buhlmann, too, speaks of these fibres, and says that we meet them with areolar tissue in the sputa, especially in phthisis laryngea, or also in a vomica; that, however, they there occur more rarely, because they form the deepest layers of the abscess, which do not separate so early,

* Simon, *Med. Chem.*, T. ii., p. 316, fig. 18.
† l. c., p. 316, fig. 19.
‡ *Anat. microscop. Unters.*, Heft 1. p. 21.
‖ *Icones*, p. 67.

and that we can find them much more easily by scraping with a scalpel after death. When, however, they occur in the sputa, they are the most certain sign of a suppurative process. But it is, he adds, self-evident, that we must often examine all parts very accurately, in order to find them; for, except in case of death of the lung, they occur extremely rarely. He says he has often found filaments of areolar tissue in syphilitic ulcers of the throat, and observes that we often meet them also in phthisical patients, especially when a tubercle has very rapidly softened and forms a spreading cavity.* He does not give a drawing of them. It is evident that he has confounded these elastic fibres with filaments of areolar tissue, which latter, however, appear to occur in the pulmonary cells in less number than the elastic fibres, and are easily distinguished from them, inasmuch as they become very transparent in acetic acid. The elastic fibres in the pulmonary cells, are, as we shall hereafter endeavor to show, separated from the cavity of the cells only by an extremely thin and weak membrane.

Lebert also speaks of these elastic fibres, and says that we sometimes, in the sputa of phthisical patients, meet very well marked pulmonary fibres; and that this is not unusually the case when there are cavities. That, consequently, their presence is an important aid in diagnosis; that they possess so peculiar a form that they can be confounded with no other fibres, particularly not with those of the trachea, which might occur therein; that as these pulmonary fibres can occur in the sputa only when the pulmonary tissue is ulcerated with tubercular matter, they afford an infallible sign of the existence of cavities (*cavernes*). He, however, also states that the elements of tuberculous sputa possess no specific character, and that it is only in some cases that the pulmonary fibres indicate the presence of tubercles; whence he infers that we are constrained to admit that the microscopic examination of the products of expectoration in phthisis contributes nothing to the elucidation of the diagnosis, especially when the case is one of incipient phthisis. But if the disease be confirmed, it is evident, he says, that the sputa lose their value in this respect, inasmuch as other physical and rational signs then exist, which enable us to establish the diagnosis.† He does not delineate these fibres as they occur in the sputa; but he gives a drawing of them as they are met with in a tubercle taken out of the lungs,‡ which drawing is, however, less characteristic than that given by Vogel.

Rainey,‖ in his recently published beautiful essay on the minute structure of the pulmonary cells, and the formation of tubercle, makes no mention of the elastic fibres in sputa. He merely says that the expectoration is in great part derived from the mucous membrane of the bronchial ramifications, and very probably cannot be distinguished from that in an ordinary case of bronchitis; but he believes that when the tuberculous matter is dissolved and expectorated, it can be with certainty recognized by no other sign than the debris of the membrane internally investing the cells.

* Buhlmann, l. c., p. 64 et seq. † Lebert. l. c. T. l, p. 413. ‡ Ibid, l. c., pl. viii, fig. 11, B.

‖ G. Rainey, on the Minute Structure of the Lungs, and on the formation of Pulmonary Tubercle, in *Medico-Chirurgical Transactions*. London, 1845, vol. xxviii, p. 595.

From the foregoing it appears, that of all the signs in phthisical sputa of the existence of a vomica, none remains except the presence of elastic fibres when these appear. The question therefore, is, do these occur with sufficient regularity to serve as a certain indication of the existence of a vomica?

That they are by no means of such rare occurrence as several writers state, I have convinced myself from my own observations, inasmuch as after I had once discovered them, I have never missed them in any sputa of a phthisical patient, and I have constantly found them in greater or less quantity. The question is, therefore, do these fibres occur only when phthisis is already far advanced, and has produced great destruction; or are they present in the sputa from the first formation of the vomica, so as to indicate with certainty the existence of a vomica from its very commencement?

On this important subject I believe I may express my conviction, that, as I shall endeavor to show, these elastic fibres exhibit themselves in the greatest quantity precisely in the beginning of phthisis, and in the first formation of a vomica, and that they belong to the most certain signs we possess of the presence of a vomica. Subsequently, when the vomica has increased to a considerable cavity, they usually occur more sparingly and less distinctly in the sputa, and this appears to me to be one of the principal reasons why many writers have either not observed these fibres, or have taken but little notice of their presence.

This struck me particularly in the case of a young man of phthisical disposition, who had for more than a year suffered from a severe catarrh, and to whom I was this summer called in consultation. On the first examination I made, I was soon convinced of the existence of an inflammatory process in the lungs; the pulse was usually above 100 in the minute; the cough was very severe; the sputa were more or less red colored and globular, though for the most part floating; bodily exercise, as well as continued speaking, excited the cough; night sweats began to increase from time to time, and on any great excitement the peculiar flush appeared upon the cheeks. Occasionally he complained of some pain in the right side between the seventh and eighth ribs. On as accurate as possible, and repeated examination, the ordinary respiratory murmur was distinctly heard in both lungs; percussion yielded a particularly dull sound nowhere except pretty low between the seventh and eighth ribs on the right side. On the application, however, of leeches, and of an issue to the affected part, these inflammatory phenomena, probably the consequence of a slight pleuritic affection in that situation, with a severe bronchitis in the finer pulmonary ramifications, disappeared; the dulness on percussion in the part became less, and after a repetition of the leeches altogether ceased; deep respiration became entirely free; and under the use of cod-liver oil, with pills containing extract of lactuca virosa, the phenomena began so far to improve that the nightly perspirations were completely checked, the cough diminished, and the pulse finally returned to about 80. The expectoration of globular and occasionally red colored sputa, however, continued, though in diminished quantity. After a couple of months the cough began to be more violent, in consequence of renewed colds and an attack of catarrh;

the sputa again acquired a less favorable aspect, and in great part sank in water, and the pulse once more became quicker. The examination of the chest now showed that between the second and third ribs of the right side, the sound on percussion was somewhat duller; no pectoriloquy could, however, be discovered; mucous râle alone was heard, and that with difficulty. Leeches were now again applied, and the issue was moved from below up to the more affected part. Now, for the first time, examining the sputa under the microscope, I found the pulmonary fibres above described in tolerably large quantity, which still further convinced me of the danger the patient was in; however, under the treatment, all the phenomena again diminished, the pulse sank once more to 80, the cough became easier, and the inflammatory symptoms decreased. But as the sputa continued pretty copious, I gave twice a day, in addition to the other remedies, and the occasional daily use of flax-seed tea, lime-water and milk; this the patient bore very well, and soon after the quantity of expectoration began remarkably to diminish, the nightly perspiration entirely ceased, the cough lessened, deep inspiration was unattended with inconvenience, and exercise produced less violent coughing. I requested a friend, a very experienced auscultator at ———, to examine the patient accurately, during a short stay there, particularly as he had seen him a year before, and had then found his chest to be in a perfectly normal condition. I shortly after, in the beginning of December, 1845, received the following answer: "In consequence of your request that I should communicate to you the results of my examination of the patient, I have examined him during his stay here. My first and principal object was to ascertain for you the phenomena observable on percussion and auscultation. Both sides of the chest appeared to me to be equal in form and circumference; percussion on the left side presented no abnormity; the right side was not so easily examined by percussion (on account of the issue). I have, however, so far as was possible, without putting the patient to pain, percussed the entire of the thorax, including the seat of the issue. Though I paid the greatest possible attention I could not discover any dulness; I can at least positively assert, that the sound in the supra-clavicular region was normal. Whether a dull sound should have been heard if the seat of the issue had been struck harder, I cannot decide. On auscultation, the respiratory murmur was normal, both anteriorly and posteriorly. On neither side of the chest could anything pathological be discovered posteriorly, while the respiration was suspended. The heart's impulse was not transmitted farther or with more force through the pulmonary tissue, than is the case in healthy individuals. At the seat of the issue I immediately found the râle described by you. The sound was unmistakeable, and was circumscribed in a small space as a mucous râle. I need not say that I did not confine my examination to what I have here communicated, but I wish, in one word, to add, that the form, color, and quantity of the sputa appeared to me only too decidedly to confirm the suspicion of the destruction of a portion of the lung.

"On the principal point, therefore, my examination gives no other result than yours. This result is in itself, certainly not particularly

satisfactory, as it affords every reason for assuming the presence of tubercular softening." (I had informed my friend of the existence of elastic fibres in the sputa). "If we, however, take into account the degree and extent of the local affection, the slight disturbance of the physiological function of the organ, and the favorable condition of the general system; if we, at the same time, recollect the slow progress of the disease, which probably now dates from a year and a half back; if we add to this, that some general phenomena had, in the space of time that he was under my care (above half a year—he had previously used no remedies of any importance,) even taken a turn for the better, the prognosis will perhaps be somewhat more favorable. I recollect your expression on this point in your former letter, that tubercular softenings, as small vomicæ, heal more frequently than is usually supposed." Thus we not unfrequently find in the lungs cicatrices of small vomicæ which had previously existed.

Hence, therefore, it appears certain that phthisis had in this case as yet made no great progress; all the phenomena of the disease were wanting except the cough and the presence of elastic fibres in the sputa, and according to a report communicated to me some days previously by the same physician, the patient was in better condition and stronger than he had been a year before, although he still was thin. The so-called physical signs of phthisis, the results of percussion and auscultation, yielded nothing certain, and the mucous ronchus, although an unfavorable sign, is surely no proof of the existence of a vomica, as it is also often present in bronchitis when the bronchi are in any degree filled with mucus; nevertheless, exactly at this time, the quantity of elastic fibres visible in the sputa was so excessively great, so that they spread continuously over the entire field of vision of the microscope. Since this time, under the continued use of the same remedies, the cough has very much lessened, the sputa have diminished in quantity, and the elastic fibres begin to be fewer in number, so that, in fact, the prognosis is now more favorable, particularly since the issue has been applied upon the affected part, and the use of lime-water was commenced. It, however, appears that where the physical signs yield uncertain results, and do not decidedly indicate the existence of a vomica, the presence of these pulmonary fibres in the sputa plainly prove that the process is not as yet wholly arrested, and that the wasting of the pulmonary tissue progresses, so that we might hence infer that this sign is really more certain than those afforded by auscultation and percussion, and that it is eminently worthy of the attention of physicians.

This will become still plainer if we add to the foregoing a remarkable case given by Buhlmann,* of a patient in whom the sputa were exactly like those of a phthisical person, and were very copious, so much so, that he brought up, with the greatest ease, whole spoonfuls of perfectly purulent fluid, just as if a considerable vomica had existed; at the same time, pectoriloquy, cavernous respiration, etc., were heard in the dilated bronchi; the microscope exhibited the most perfect and unmistakeable pus, and no doubt was entertained of the presence of a vomica, while

* l. c., p. 39.

dissection proved that no abnormity existed but dilatation of the bronchi, without either vomica or ulceration of the mucous membrane, consequently no elastic fibres could be found in this case.—*Dublin Hosp. Gaz., Sept.* 1857.

2.—*On the proximate cause and specific remedy of tuberculosis:* Abstract of a paper laid before the Academy of Medicine of Paris, on the 21st of July, 1857: By John Francis Churchill, M. D.—The total number of cases of phthisis treated by me amounts to thirty-five. All were in either the second or third stages of the complaint—that is, they had either softened tubercles or cavities in the lungs. Of these nine recovered completely, the physical signs of the disease disappearing altogether in eight out of that number; eleven improved considerably, and fourteen died; one still remains under treatment.

I believe that the results, of which the preceding is a summary, taken in connection with the considerations I have set forth at length in the paper now in the hands of your Hon. Secretary, will be found to justify the following conclusions:

The proximate cause, or at all events an essential condition of the tubercular diathesis, is the decrease in the system of the phosphorus which it contains in an oxygenizable state.

The specific remedy of the disease consists in the use of a preparation of phosphorus, uniting the two conditions of being in such a state that it may be directly assimilated, and at the same time at the lowest possible degree of oxydation.

The hypophosphites of soda and lime are the combinations which hitherto seem best to fulfil these two requisites. They may be given in doses varying from ten grains to one drachm in the twenty-four hours. The highest dose which I have been in the habit of giving to adults is twenty grains.

The effect of these salts upon the tubercular diathesis is immediate, all the general symptoms of the disease disappearing with a rapidity which is really marvelous.

If the pathological deposit produced by the dyscrasy is of recent formation, if softening has only just set in and does not proceed too rapidly, the tubercles are absorbed and disappear; when the deposit has existed for a certain time, when the softening has attained a certain degree, it sometimes continues in spite of the treatment, and the issue of the disease then depends upon the anatomical condition of the local lesion, on its extent, and upon the existence or non-existence of complications. I have made numerous attemps to modify the local condition of the lungs by the inhalation of different substances, but have never obtained any satisfactory result independent of what was to be attributed to the specific treatment. The hypophosphites of soda and lime are certain prophylactics against tubercular disease.

The physiological effects which I have observed to be produced by the use of the hypophosphites of soda, lime, potash and ammonia, show these preparations to have a two-fold action. On the one hand they increase the principle, whatever that may be, which constitutes nervous force; and on the other, they are the most powerful of hæmatogens, being infinitely superior to all medicines of that class hitherto known.

They seem to possess in the highest degree all the therapeutical properties formerly attributed by different observers to phosphorus itself, without any of the danger which attends the use of that substance, and which has caused it to be almost forgotten as a medical agent. The different preparations of hypophosphorous acid will undoubtedly occupy one of the most important places in the materia medica.

The Academy resolved that the paper be referred to a committee, consisting of MM. Louis, Trousseau, and Bouillaud.—*Dublin Hosp. Gaz., Aug.* 15, 1857.

3.—*Of the nature of phthisis, and particularly of the pre-tubercular stage:* By Dr. E. Smith. (*Lancet*, Nov. 1, 1855.)—After pointing out the advantages of special hospitals in the study of diseases, the object of the author is to show—1st, That the treatment of phthisis, in order to be commonly successful, must be in the pre-tubercular stage; 2d, That there is a pre-tubercular stage, which is capable of easy demonstration, and in which treatment would commonly prevent the deposition of tubercle; and 3d, That the nature of phthisis essentially consists in a lessened inspiratory action of the air-cells of the lung. He admits that phthisis is induced by a multitude of causes, but he affirms that the tendency of all these is towards exhaustion, and that they, although many, have one common mode of action in inducing the disease. He criticises minutely the prevalent opinion, that phthisis is a disease of the blood, and proves that whatever may be the state of the blood in the disease, there is no universal condition of it which attends the origin of the disease, or which is really causative of it. The state of the system, which is one of the causes of phthisis, is one of both solids and fluids, and is to be expressed rather by a general predisposition to the disease than by the specific state of the part of the system—viz.: the blood, in which the elements of the disease had never been found, or had been directly transmitted to another system. He also proves from his own investigation, that the function of alimentation was not at fault as causative of phthisis, by showing that the quantity of food taken in the early stage is equal to that in health; and by reference to the fæces, solids in the urine, biliary and cuticular excretions, he showed that there was then no larger excretory waste than occurs in health. The lessened action of the air-cells he proved from the lessened vital capacity, feeble respiratory power, and lessened mobility in the early stage of the disease, the consequently lessened vesicular murmur, increased harshness of respiration and flattening of the chest, with or without slight dulness, indicative of atrophy of the lung. He also proved that the signs of lessened vesicular action are found in all those cases, which, by common consent, are said to be prone to phthisis, and mentions instances in his own practice at the hospital, in which the vital capacity was reduced to the extent of two-thirds, or half of the healthy quantity, without there being any evidence of the deposit of solid matter in the lung. This stage of lessened vesicular inspiratory action, without any evidence of tubercular deposition, he designated as the first stage of the disease, one in which every hope of success may be entertained from suitable treatment. The second stage was that of tubercu-

lar deposition, and the third, that of destruction of tissue, whether to the extent of softening only, or to the further degree of the formation of a cavity. He then proceeds to show the connection between the act of inspiration and the circulation through the lungs, and the importance of maintaining a balance between the systematic and pulmonic circulations, and explains the especial liability of the apex of the lung to tubercle, by a consideration of the mode of action of the lung, whereby the cells at the apex must at all times be less perfectly distended than those at the base, and, consequently, have less circulation and vital influence. He discards the notion of the deposition of tubercle in the lung from the blood, and having referred to Dr. W. Addison's theory of the formation of tubercle on the lung from degenerated epithelium, shows how readily the air-cell is rendered fit to be a receptacle of such morbid products when its action and vital influence are lessened or lost. The extreme liability of the lungs to the deposition was not from any question relating to the blood, but from a consideration of the peculiar action of extrusion and retraction of the air-cell (as he had demonstrated,) and from the immense number of such filled receptacles as the air-cells of the lungs offered. He believes that phthisis and scrofula are distinct diseases, and that whilst they may be sometimes causative of each other, their co-ordinate occurrence was chiefly accidental. Dr. Smith also explains the occurrence of hæmoptysis before the deposition of tubercle, upon the principles now laid down, and points out the impropriety of any attempt to arrest it directly, and also of interfering with that degree of increased frequency of respiration and pulsation which nature sets up as a prophylactic measure when the amount of circulation in the lungs is so greatly lessened as it is in all stages of phthisis.

4.—*On the treatment for the arrest of phthisis:* By Dr. Edw. Smith. Assistant Physician to the Hospital for Consumption at Brompton, (*British Med. Journal*, Jan. 10, and Feb. 7, 1857.)—After having investigated the subject in a very careful manner, Dr. Smith has arrived at the conclusion that alimentation is *not* at fault, since the quantity of food taken is equal to that in health, since digestion is good, and the waste of material not greater than in health, and that the respiration is at fault. The theory propounded is that the disease essentially consists in the lessened action of the air-vesicles, and that it is commonly due to anterior conditions of the general system of a depressing nature. These general conditions are in part, probably, certain atonic states of the nerves of organic life, and more particularly of the sets of those nerves and of the communicating branches of the cerebro-spinal system which preside over the involuntary and also the voluntary action of the lungs.

The treatment recommended may be summed up in the following sentence: Forced inspirations, out-of-door exercise, good and frequent food, sleep, early rising and retiring to rest, cool, moist air, cold washing, moderate excitement of the mind, and medicinal tonics. There is also another, which may rather be considered a prophylactic of phthisis, and which, in his opinion, is of far greater value than the community at the present day admit; viz.: athletic exercises, and country sports and games.

The means upon which Dr. Smith lays most stress is that of "mechanical distension of the air-cells to a degree beyond that which takes place perhaps in health, but certainly in the state of enfeebled respiration in which we find the patient. This may be effected by bodily exertion, which tends directly to increase the frequency and the depth of inspiration; and, as this mode is so consonant with our knowledge of the laws whereby health is maintained, no objection will be urged to it. But to my mind there is the objection that, in phthisis, whether before the manifest deposition of tubercle, or afterwards in the early stages of the disease, the pulse is frequent proportionately to the respiration; so that the respiration is to the pulse, not as 1 to 4, but as 1 to 5, 6, or 8. I have paid much attention to this matter in a long inquiry which I have prosecuted at this hospital, and am assured that, in the early stage of phthisis, the proportion of the two functions is commonly reduced. Now the pulsation is at least frequent enough, and it is not uncommonly too frequent; and hence we do not need to apply any remedies which may increase the rapidity of the blood-current. But exercise of body, and even the sitting and standing postures, do increase the blood-motion; and, although they at the same time increase the rapidity of breathing, they do it in a less ratio than the former. Whilst, therefore, bodily exertion may be useful, and is indeed necessary in giving more rapidity and depth to the inspiratory effort, it is not an unmixed good. But we must not forget that the quiet motion of the body, which is now said to be bodily exercise, does not excite the depth of inspiration sufficient for our purpose; and it is only when it becomes so great as is needful in athletic exercises that the desired result is attained. Hence the directions which we commonly give are of little avail, although the tendency of them is right. Yet, with the violent bodily exertion referred to, the rapidity of the blood-current is greatly increased, and at the same time there is a proportionate diminution in the deposition of material in the tissues, and in the due action of the air upon the blood in the lungs. Thus lessened growth of body occurs, with, at the same time, less vigor of vital processes, and a waste of material through the eliminating organs. This must result when the body is in health; but then the temporary evil is either easily borne, or is compensated by good; but when, in phthisis, at least in the tubercular stages, we find a tendency to a constant rapidity of current, and consequently to lessened growth of tissues, we must attach a greater degree of importance to it. The effect of much exercise in phthisis is, therefore, evil certainly, although, at the same time, it may be, but less certainly, good.

Now, is it possible to meet this difficulty, and to find a mode whereby the depth of the inspiratory act shall be increased, and yet the rapidity of the blood-current not sensibly promoted? Perhaps not, in the fullest sense of the inquiry; but I think it may in a limited yet important sense. I refer to voluntary attempts at deep inspiration. This cannot be continually effected, since volition cannot be at all times directed to that end; and if it could, the very act would fatigue the system; but it may be for a limited period at a time: and the very instruction thus given, if properly explained, will induce the patient to guard against that shallow respiration which is so constant a feature of

the complaint. Thus the mind would be directed to an object of value; the spirits would be excited by hope; and the evils attending a listless and enfeebled habit of respiration would be in some degree guarded against. This object is doubtless attempted when the patient is directed to use calisthenic exercises, as the use of the dumb-bells; and there can not be a doubt that the vigorous employment of such means may excite inspiration. But it is one thing to throw the arms about, and another to make that conducive to the deep inspiration. We must admit that, whilst the object is good, the practice has commonly defeated the object, and that perhaps in a great degree from the want of knowledge on the part of the patient to enable him to make his efforts efficient. Moreover, I am not clear but that sometimes, and, perhaps, frequently, the effort now referred to, lessens the frequency, and without increasing the depth, of inspiration; for nothing is more common than for us to hold our breath when making any unusual voluntary exertion.

I think that nothing less than direct voluntary attempts to breathe deeply would effect the object we have in view; and even this is certain to fail unless it be carefully effected. The seat of mischief is chiefly in the upper lobe and the apex of that lobe. Now, if we take an ordinary inspiration, we find that the expansion of the chest is disproportionally greater in the lower than in the upper half of the chest; and when the respiration is unusually feeble, this disproportion is so much the greater that scarcely any breath-motion may be detected under the clavicles. But, on deep inspiration, the first sensation of fulness is at the base of the lungs, and that sensation gradually rises as the depth of the effort increases, until, at the very end of the deepest inspiration, the sensation is felt at the apex. This may be readily proved by any one who will take the trouble to try it carefully upon himself. Now, in this very fact lies the difficulty of the matter. It is almost impossible to persuade a phthisical patient to take an inspiration of the depth referred to; for his habitual shallowness of effort induces him to consider *that* a deep inspiration in which the lung is by no means fully distended. It is my habit to show the mode and the required depth by my own inspiration, and to inform them that it is only the *very end* of the deep inspiration which is of service to them. Our aim should therefore be to have the deepest inspiration performed as often as we think right, with a view of thus preventing the process of closure, which is, in my belief, the mode of action of the disease. If there were not a serious objection to the introduction of any instrument as a part of medical treatment, I should advise the employment of a spirometer, which would measure the amount of air inspired; and this, whilst engaging the patient's attention, would enable him to regulate his voluntary efforts, and to ascertain the result. I have several in use; and, after a repeated employment of them in determining the amount of vital capacity at various periods, the patients have expressed much gratification in the assurance that they felt much better from this forcible attempt to inspire deeply.

I fear that this may be thought too mechanical a plan of treatment; but I beg to observe, that the very existence of the air-cells themselves is in part due to the mechanical introduction of air within them. There

are no developed air-cells in uterine existence; and even during the first early period of extra-uterine life they are so slightly developed as to be said not to exist at all. When the air is first admitted into the bronchi, there are no true cells such as may be found in later life; and the period of their development is that of breathing, and their maturity is due to the continuance of the effort. Thus the development of the air-cells may be said to be due to the mechanical agency of inspiration. Moreover, we know how greatly the depth of inspiration is due to volition, to the thousand necessary occurrences of daily life, and to the effect of other diseases; and we admit at once that the effort of inspiration varies under these several conditions. Hence it is not unphysiological to direct an effort to make the act of inspiration perfect (as we daily do to render the digestion of food perfect), and to keep in a due state of distension, or to increase the existing degree of distension, of the air-cells of the lung.

I do not know if any difficulty would present itself to any mind in reference to the limitation of the lessened action, or of collapse to isolated small portions of the lungs, as is believed to exist on this theory. Perhaps it is more easy to understand how the whole organ may be influenced, rather than a part of it; but, in addition to the special disposition which must exist in the upper lobe, and especially of the apex, from the direction and depth of the air-current in inspiration, I may refer to the fact that the atelectasis of the newly born is always partial, and may be even limited to one or to several isolated and separated lobules. Hence it may be said to act only on individual cells, and is a fair illustration of that which is believed to exist in the earliest stage of phthisis. The one is not more difficult of belief than the other.

To show that voluntary inspiration not only may, but has been defended on physiological grounds I would refer to a remark made by Lehmann, vol. iii, p. 382. In reference to excretion of carbonic acid largely, he says: 'We may perhaps aid a tuberculous patient quite as much by recommending him to respire warm moist air, as if we prescribed lichen or cod-liver oil. Instead of tormenting an emphysematous patient suffering from congestion, and of hemorrhoidal tendencies, with aperients and saline mineral waters, we might relieve him far more effectually by recommeding him to practise artificial augmentation or expansion of the chest in respiration (filling the lungs several times in the course of an hour,) or to take exercise suited to produce this result; while we should forbid the use of spirituous drinks, and not prescribe tinctures, which might hinder the necessary excretion of carbonic acid.'

In advising this course, I do not for a moment refer to any increased chemical influence which the increased volume of air may or may not have upon the blood, neither do I make use of the theory that, by this means, we effect pressure upon tubercle, and promote its absorption; I only claim for it, that it will tend to prevent the decay and the closure of the cells from inaction, and thus prevent the further deposition of tubercle in cells which are not already rendered useless by or with it. But it is fair to infer that there must be by this means a more complete renewal of the residual air, and thereby a further benefit be obtained. It may, however, be proper for me to refer to the experiments of Vierordt

in reference to the influence of voluntary respiration in promoting the evolution of carbonic acid. He ascertained that the more frequent the respiration, the less percentage of carbonic acid was evolved; but, as the total quantity of air taken into the lungs was increased by an increased number of inspirations of a uniform depth, the total quantity of carbonic acid evolved in a given time was greater than with fewer inspirations. Thus:

With 12	inspirations	per minute	13½	cubic inches	were evolved.
" 24	"	"	24.2	"	"
" 48	"	"	42.5	"	"

And in reference to variation of depth, the frequency being constant, he proved that, with an inspiration twice as deep, the quantity of gas evolved was the same as when the inspirations were three times as frequent, the depth then being constant. Thus the objection which is so commonly raised to voluntary attempts to respire, viz.: that it does not increase the vital force, is incorrect; for, in practice, we are not concerned with the percentage evolution of carbonic acid, but with the total evolution in a given period.

The reason for the large increase in the amount evolved by an inspiration simply twice as deep as an ordinary one, is, that the air in the air-cells is richer in carbonic acid than that in the minute bronchial tubes, in the proportion of 5 to 3; and hence, as a deeper inspiration causes more movement in and exchange of the residual air, the air-cells must lose a larger quantity of the products of respiration. Hence the remedial influence of deep voluntary inspiration is both mechanical and chemical.

The effort now recommended may weary the patient; and hence I have thought it enough if the patient thus deeply, slowly, and gently respire for five minutes at a time, and on three or four occasions in the day, at the same time explaining the object, and recommending him to avoid shallow breathing in his ordinary respiration. Thus fatigue is avoided, and yet, probably, the effect is obtained.

It is, however, essential to the success of this plan, that it should be fairly carried out: and if, from other causes, no success results, I do not know of any mischief which could possibly arise from this. Success will, of course, be dependent upon many causes, and hence neither this nor any other single plan of treatment can be exclusively relied upon. It has, however, this merit, that it is of almost universal application, has evidently a tendency to improve the health, and cannot do harm. When there is no tubercle deposited, I am of opinion that the plan, if fairly carried out, can hardly be inefficacious; but, in the last stage of phthisis, the possibility of arresting the disease by any means is very small.

5.—*On the diagnostic value of the symptoms indicative of Pulmonary Cavities:* By Dr. N. Friedreich. (*Verhadnl. der Phys. Méd. G. in Würzberg*, Seib. Bd., 1856; and *Med Chir. Rev.*, April, 1857.)—The cracked-pot sound, the tympanitic percussion sound, the amphoric and metallic respiratory sounds, are in this paper examined in relation to the diagnosis of pulmonary cavities. We recently drew attention to

Professor Bennett's observations on the occurrence of the cracked-pot sound in various conditions unconnected with cavities. Dr. Cockle has also shown that it may occur in cases of simple bronchitis. Dr. Friedreich gives three cases of pleurisy in which this sound was met with. In the first (a man, aged twenty-two), it occurred in the left infra-clavicular region, at the time when the effusion on the same side was receding, and it lasted until its complete absorption. In the second (a man, aged twenty-two), the sound occurred from the commencement of the affection, and whether the nose and mouth were open or closed, in the left infra-clavicular space, as far as the third rib, to which the pleuritic effusion reached. It disappeared before any change in the exudation was perceived. In the third case (a man, aged twenty-three), the *bruit de pot-fêlé* was produced, the mouth and nose being open, at the upper left side, down to the third rib, at which point the effusion commenced. The patient was still under observation when the paper was written. With regard to the occurrence of the sound in healthy subjects, Dr. Friedreich has failed to discover it in the adult, but on examining forty-six children under fourteen years of age, he met with it twenty-six times—fourteen times audible on both sides anteriorly, but only in five equally loud—in the other cases, generally louder on the left than the right side, and only twice louder on the right than the left. In explaining the production of the cracked-pot sound, Dr. Friedreich opposes the theory that it is due to air being forcibly expelled through the glottis; because, on applying the stethoscope to the larynx, while another person produces the sound, no indication of its formation at the glottis is obtained. In bronchitis and early infancy, he believes the production of the sound to be due to the compression of the smaller bronchi during the act of percussion. He adopts Skoda's theory of its production in phthisis, while in pleurisy, he attributes it to compression of the pulmonary tissue by the exudation, and the forcible expulsion through the smaller bronchi of the air contained in them, when percussion is employed.

6.—*A case of peri-tracheal deposit with secondary disease of the Lungs:* By Dr. BRINTON, Physician to the Royal Free Hospital. (*Lancet*, Feb. 28, 1857.)—The following case possesses considerable interest, both from its bearing upon the symptomatology of the respiratory organs, and from its connection with those phenomena of the sympathetic system of nerves respecting which both pathology and physiology have at present much to learn.

CASE.—S. W—, an unmarried woman, æt. 22, had suffered, during about three months, from slight cough, attended with little or no expectoration, but with some emaciation, and with amenorrhœa. Her family was free from phthisical taint. Her habits were temperate; her occupation that of a laundress; her circumstances latterly so straitened as to reduce her food below its customary standard of quantity and quality.

About a month before her admission into the Royal Free Hospital, she was suddenly seized with the severe symptons from which she dated the present illness. Her cough became violent, and was accompanied

with pain in the region of the upper half of the sternum, as well as with expectoration. She lost all appetite; her strength was prostrated; and gradually becoming worse, she applied and was admitted an in-patient on the 25th of January.

At this time her aspect was that of a person suffering from some acute pulmonary disease. Her face, pale and somewhat emaciated, had a haggard, anxious look, and her nostrils worked almost convulsively with each inspiration. Her lips were of a blue tinge, suggestive of partial asphyxia. Her skin, though hot and dry over the trunk, was colder than natural at the extremities. Her pulse was about 120 per minute; her breathing about 36; and both inspiration and expiration (but especially the latter act) gave rise to a mucous rattle, audible at some distance from her bed, and precisely like what is vulgarly known as "the deadrattle" that immediately precedes the final agony. The voice was feeble but distinct. Her cough was frequent, and somewhat paroxysmal in character; but though loose enough to suggest an easy expectoration, this expulsive act was rarely effectual, being repeated several times before it hawked up a dull-yellow, opaque, puriform, and somewhat nummular sputum.

On examining the chest, there seemed no deficiency of movement on either side, although a forced inspiration decidedly bulged the left side a trifle more than the right. The vocal thrill was equal on both sides. The vocal resonance was somewhat more distinct on the right, especially in the subclavian region, where there was slight dulness to percussion, and where the inspiration was rather louder, harsher, and more tubular than elsewhere, and the prolonged expiratory murmur somewhat similarly affected.

It was not, however, without some difficulty that these sounds could be verified. All of them were veiled and nearly lost in the mucous rattle before mentioned, which was heard over the whole chest as a large loud sound of low tone, with irregular remissions of intensity, but scarcely any real interruptions or intermissions. It was loudest during expiration. It never approached to a liquid or bubbling sound. It was utterly unlike the harsh, snoring sound sometimes produced by aneurismal interference with the larynx. Its distinctness increased as it was traced towards the manubrium.

Besides this sound, a little mucous crepitation occupied the more depending parts of both lungs—namely, the lower lobes posteriorly.

The heart, rather large and weak, appeared to be otherwise quite healthy, as did also the larger vessels. The integuments, including those of the face, were flabby and almost puffy, but there was no anasarca. The urine was scanty and high colored, but devoid of albumen. The bowels rather constipated.

There could be little doubt that the patient was almost moribund on her admission, and past all hope of that reäction which the comforts and the treatment of an hospital sometimes bring about—even in cases where, as in this instance, the desperate state present seems due to neglect or privation almost as much as to disease.

The body, examined about sixteen hours after death, was but imperfectly rigid. On careful dissection, it exhibited the following appearances:

The heart was relaxed and flabby; its left ventricle uncontracted; its right ventricle distended with a tolerably large quantity of dark blood. Its valves were healthy, as were also the large vessels arising from it.

The right lung had not collapsed over about one-third of its anterior surface, including its middle and most of its upper lobe. All this portion of it had a pale-red or flesh-colored hue defined by an abrupt, wavy margin from the neighboring collapsed and healthy-looking pulmonary tissue. A similar appearance, of less distinctness, engaged a very small portion of the anterior surface of the left lung, near its root.

The larynx, trachea, œsophagus, and lungs were next removed in a mass, and subjected to further examination. The diseased portions of lung were nowhere absolutely devoid of crepitation when compressed. But in the amount of this crepitation they contrasted with the somewhat dark and engorged healthy lung in their neighborhood just as remarkably as they did in respect of color. Indeed, all the portions in which this color and consistence were best marked, had a specific gravity enabling them to sink readily in spring-water. Their section allowed the expression of a whitish, albuminous-looking juice from the pulmonary lobules, and of a purulent fluid from the cut orifices of the smaller bronchi. The characters of this pus were identical with those of the matter expectorated during life.

On dissecting carefully around the bifurcation of the trachea, it was found that the anterior aspect of the fork of this tube was occupied by a dense, dull, yellowish-white mass, about half an inch in thickness, of extremely tough and fibrous consistence, and about one inch deep in the vertical direction. The right side of this mass extended along the root of the lung in front of the right bronchus, where it became fused into the fibrous capsule of a calcified bronchial gland, that seemed to bound it in this direction. To the left side it spread, as a layer of rapidly-decreasing thickness, for a short distance over the root of the left lung. Upwards it reached, on the right side, a little way along the trachea, and was loosely connected with an oblong bronchial gland (also calcified in its centre) here: towards the left side, it crossed obliquely over the trachea, to become moulded, with a great and sudden increase in its thickness (here three quarters of an inch), upon the left third of the tracheal circumference, for about an inch and a half, just avoiding the œsophagus and its attachment to the respiratory tube. The areolar tissue attaching the aorta and great vessels to this mass was almost everywhere reduced to a scanty (and therefore rather tense) network; but it was nowhere so deficient as to bring the mass into immediate contact with them, far less to imply any fusion with their coats. But at the left side and lower part of the trachea, the mass was completely agglutinated to this tube, resting upon it by a firm immovable union, which evidently depended on the complete involvement in the disease of the normal areolar tissue; so that a section showed the cartilages of the trachea immediately bounded by the new substance. Just at this line of junction the mass was in one place softened, and apparently detached

from the subjacent cartilage. The exact degree in which the calibre of the trachea had been diminished by the pressure of this adventitious deposit, it was difficult to determine after laying open the tube. But there could be no doubt that a considerable effect of this kind had obtained during life. Indeed, even after removing the lungs from the body, and thus relieving the parts of that surplus pressure which the pulmonary deposit must probably have brought about, the influence of the mass on the trachea was well shown by its separating the adjacent rings of the adherent trachea to a distance from each other amounting to at least twice or thrice that elsewhere intervening between the neighboring cartilages. This local elongation of the trachea must obviously have sufficed to effect a considerable diminution of its calibre, such as would impart a much greater efficacy to the further pressure or flattening of the tube by the deposit which occupied its circumference. The inferior laryngeal nerve of the left side was stretched and flattened over the deposit, and was also thickened and redder than natural in the same place. But it was not further involved in the disease.

On examining thin sections of this mass under the microscope, with the aid of various reagents, it could be seen that it consisted of an adventitious deposit, for which the original areolar tissue constituted a kind of stroma. The new mass was, in fact, imbedded in the old areolar network, the white and (especially) the yellow elements of which were visible in the form of tightly stretched meshes, the interstices of which were so distended with the adventitious substance that they could only exhibit their ordinary curling and hooked appearance at the extreme edges of any given section. The vessels which could also be seen, were here and there connected with (and apparently occupied by) large compound cells, closely resembling those of the spleen, and, like them, containing what appeared to be blood-corpuscles in various stages of disintegration. The new substance itself consisted chiefly of delicate and indistinct fibres, analogous to the ordinary fibrous development of plastic lymph; with this fibrous mass, however, were mingled so many granular and indistinctly nuclear particles, so as to give the whole a somewhat larger amorphous constituent than is usually found in new fibrous tissue. Near the softened part, this amorphous element was more abundant, so much so as almost to suggest its approximation to the characters of tubercle.

The pulmonary disease—which though nowhere traceable by direct continuity into the tracheal, approached very near it, and, on the right side, increased in intensity almost directly with this propinquity—offered some analogies with the tracheal. The lung was infiltrated with a large quantity of albuminous fluid, in which were floating pus-cells and "mucus corpuscles," together with innumerable epithelial cells. The latter were evidently the ordinary epithelia of the pulmonary lobules, abnormal in nothing save in their quantity, and in the polyhedral forms which close packing had forced them to assume. The lobules were indeed many of them almost stuffed with these epithelial particles, which, adherent to the lobular membrane, had either been washed out or broken down in the centre of the lobular cavity. The capillaries of the diseased lung were singularly empty of blood corpuscles; while they were almost

everywhere bulged, at short intervals of their length, by large ($\frac{1}{1200}$ in. diam.) cells containing refractile granules, like the more sparing and less uniform bodies of the same kind found in the tracheal deposit. In some instances the membrane enclosing these granules appeared to be deficient over part of their exterior: rarely it was absent all around them, so that they were merely granules aggregated into a spherical mass, not enclosed within a cell-wall. They seemed to be nowhere free in the lobules, except under circumstances which referred to its extra-vascular site to accidental violence. No destruction or lesion of lobular tissue could be detected.

7.—*On the determining causes of Vesicular Emphysema of the Lungs:* By Dr. JENNER, Physician to University College Hospital, etc. (*Medical Times and Gazette*, Jan. 24, 1857.)—After referring to the importance of ascertaining the determining cause of pulmonary vesicular emphysema as a guide for its prevention, and to the predisposing influence of all changes in the structure of the lung which impair its contractility, the author adverted to the fact, that the only force capable of unduly dilating the air-cells called into play during respiration is the pressure of air on their inner surface. He then briefly recapitulated the inspiratory theory at present generally received, and quoted the following passage from the latest exponent and most powerful advocate of that theory: "The act of exspiration tends entirely towards emptying the air-vesicles, by the uniform pressure of the external parietes of the thorax upon the whole pulmonary surface; and even where the air-vesicles are maintained at their maximum or normal state of fulness by a closed glottis, any further distention of them is as much out of the question as would be the further distension of a bladder blown up and tied at the neck by hydrostatic or equalized pressure applied to its entire external surface." The object of his paper, Dr. Jenner states, is to show, in opposition to these views, that the force called into play by powerful expiratory effect is by far the most common and efficient cause of vesicular emphysema of the lung. Powerful expiration is, Dr. Jenner affirms, infinitely the most frequent determining cause of acute vesicular mphysema, and of the chronic vesicular emphysema, which accompanies chronic bronchitis. It is probably the constant determining cause of the vesicular emphysema which supervenes on chronic congestion of the lungs and bronchial tubes, and on diseased heart, and of the atrophous emphysema of the aged, and the invariable determining cause of vesicular emphysema whenever it is general, or occupies chiefly or only the apex and border of the lung, and whenever the dilatation of one or more vesicles is extreme. Dr. Jenner denies that during expiration every part of the lung is equally supported and equally compressed, and he affirms that the apex, the anterior margin, and the margin of the base, and some parts of the root of the lung, are at once imperfectly supported, and comparatively or absolutely little compressed only during expiration. The thoracic parietes covering those parts of the lung which are the least supported and compressed, are those which are seen when a person makes a powerful expiratory effort with a closed or imperfectly open glottis, as in hooping-cough, croup, and hypertrophous

emphysema, to be driven outwards. These same parts are the most common seats of emphysema. Three cases are detailed by Dr. Jenner in illustration of his position. In proof of the force exerted on the air-cells of the lungs when powerful expiratory efforts are made with a closed glottis, mention is made of the well-known fact, that during the expulsive efforts of labor one or more cells occasionally give way. In a postscript, the author mentions that he had examined several horses for the purpose of ascertaining whether the parts of their lungs affected with vesicular emphysema were situated in those parts of the thorax the least supported and compressed during expiration, and that in all he found such to be the case.—*Ranking's Abs.*, 1857.

8.—The British and Foreign Medico-Chirurgical Review, quotes from Mr. Alex. H. Johnston's new work "*On the Geographical Distribution of Health and Disease*," the following statement concerning consumption:

It originates in all latitudes—from the equator, where the mean temperature is 80°, with slight variations, to the higher portion of the temperate zone, where the mean temperature is 40°, with sudden and violent changes. The opinion long entertained, that it is peculiar to cold and humid climates, is founded on error. Far from this being the case, the tables of mortality of the army and navy of this and other countries, as well as those of the civil population, warrant the conclusion that consumption is more prevalent in tropical than in temperate countries. Consumption is rare in the Arctic regions, in Siberia, Iceland, the Faroe Islands, the Orkneys, Shetlands, and Hebrides. And in confirmation of the opinion that it decreases with the decrease of temperature, Fuchs shows, from extensive data, that in Northern Europe it is most prevalent at the level of the sea, and that it decreases with increase of elevation to a certain point. At Marseilles, on the seaboard, the mortality from this cause is twenty-five per cent.; at Oldenburg, eighty feet above the sea, it is thirty per cent.; at Hamburg, forty-eight feet above the sea, it is twenty-three per cent.; while at Eschwege, four hundred and ninety-six feet above the sea, it is only twelve per cent.; and at Brotterode, eighteen hundred feet above the sea, 0.9 per cent. It is calculated that in the temperate zone, within which nearly all the civilized inhabitants of the globe are located, at least one tenth of the population die of this malady. It is uniformly more fatal in cities than in the country. In England, the excess in cities is equal to twenty-five per cent. The greatest mortality occurs from the age of fifteen to thirty.

The Review adds:

Respecting consumption in the United States climate, Dr. Forrey has also established, by numerical facts, that the number of consumptive cases which originate in summer are not less than those of winter; and that the frequency of the disease in the United States army, located in the warmer, moister, and more uniform climate of East Florida, (as in our own army in Jamaica and the West Indies,) is greater than in the

more inclement northern regions of America or Canada. By the statistical reports of the British army, it appears that the proportion of attacks in Jamaica and the West Indies is 12.5 per 1000, but in Canada and the United Kingdom only 6.5. In the southern divisions of the American climate, the Lower Mississippi and East Florida, the average proportion attacked is nearly 10.5 per 1000; while in the most inclement regions of the north, the average is little more than 5.0 per 1000.

9.—*Twenty aphorisms in respect of health and healthy respiration, but principally in reference to Consumption and Scrofula:* By HENRY M'CORMAC, M. D., of Belfast, Ireland.—1. All animals that breathe, all warm-blooded animals in particular, are under a constant incumbency to respire a pure fresh atmosphere.

2. A pure atmosphere is necessary to the conversion of venous into arterial blood. It is necessary in order to get rid of the else continually accumulating detritus or waste of the system, which, by a wonderful provision, is intended at once to be got rid of, and to serve as fuel; in other words, to leave the blood pure, and to maintain the entire organism at a temperature of 100° F.

3. The waste, however, will not be sufficiently got rid of, nor will the animal warmth be properly kept up, unless the respiration be a healthy respiration. Now, there cannot be healthy respiration without pure air.

4. It is necessary to healthy respiration that the same atmospheric air should not be breathed oftener than once. If breathed oftener than once, and if habitually so breathed, it leads to disease.

5. Nature, if permitted to do so, conveys away the air fouled by respiration, purifies it through the instrumentality of vegetation. Until this be done, air that has been breathed is not fit to breathe again.

6. Air once breathed is poison for man and brute, but is food for plants. Air breathed oftener than once is still more poisonous for man and brute, though still more nutritive for plants.

7. Under the open atmosphere, beneath the free heavens, the air which has been once breathed is speedily conveyed away; but in close, ill-ventilated chambers, it is retained, and consequently is breathed not only oftener than once, but frequently many times oftener than once.

8. Air breathed oftener than once becomes surcharged with carbonic acid gas, the result of combustion, and with other waste excretions of the frame. When this surcharge of impurity amounts to eight parts in the hundred, or 8 per cent., of carbonic acid gas, the respired air will take up no more waste. Here the waste is retained in the system, and, if the evil process be continued, eventually leads to disease. Air only once breathed becomes loaded with four parts in the hundred, or 4 per cent., of carbonic acid gas, whereas the natural atmosphere contains only one volume in a thousand, $\frac{1}{1000}$ or 0.001 of carbonic acid gas, and according to some estimates even less, in which state it is best fitted, and indeed is alone fitted for healthy respiration.

9. Anything, therefore, which prevents the access of a healthy atmosphere to the lungs, or which deteriorates the atmosphere which does find access, is productive of disease, and sooner or later, if the evil influence continue, of death!

10. Day ventilation, however desirable, will not adequately suffice without night ventilation also. A large amount of breathing space is obviously preferable to a small amount of breathing space; but no amount of breathing space can supersede the necessity of an interchange, night and day, and continually, of the air of the rooms in which we live, and breathe, and sleep, and work, with the outer atmosphere. In numberless dwellings, workshops, workhouses, and asylums, the air breathed, irrespective of various stenches and impurities, is deteriorated to the extent of two, and in some instances, nearly three per cent. of carbonic acid gas. Respiration in such dwellings, workshops, and asylums, where there is no provision or no adequate provision for replacing the tainted air as fast as it forms, with air pure, fresh, and untainted, is simply death, sooner or later, and from this cause, to the inmates!

11. In houses, dwellings, rooms, as constructed, arranged, and inhabited, the air too commonly is more or less impure, and consequently unfitted for healthy respiration. The evil of foul air, therefore, extends to the living inhabitants of these abodes, to man and man's offspring, as well as to the lower animals which for his use or pleasure he domesticates beneath his roof.

12. In man and brute alike, the impurities not being properly eliminated by the lungs, so far as the lungs are called on to perform this office, are retained in the system, retained in the blood. When a certain pitch or degree of impurity is arrived at, the waste not being healthily and naturally got rid of, is laid down throughout and within the system, where it accumulates in points till it become obvious on examination to the naked eye. In this state it has received the technical denomination of tubercle.

13. The retained animal waste or excretion which bears the name of tubercle, has no organization, no trace of life or vitality. It is to the system what the offal and mud heaps are in our public ways and thoroughfares, only that in the one case the waste is properly thrust *out* of our dwellings, whereas in the other it is most improperly and undesirably retained *in* the frame.

14. This tubercle waste or excretion, at certain stages, has very much the aspect of rotten cheese or other decayed and dead animal matter, and acts not only as a foreign body, but virtually as a poison in the system or organism where it has no business whatever to be, and in the long run, whether in man or brute, tends invariably to death.

15. When the tubercle waste or excretion lodges in the brain or its membranes, it induces, or tends to induce, hydrocephalus or water on the brain, in some cases convulsions. When it betakes itself to the knee it induces white swelling. When it is seated in the hip it induces hip-joint disease. When it lodges in the spine it causes spinal disease. When it finds its way into the joints or bones of the foot, or hand, or wrist, or ankle, or shoulder, or elbow, it produces disease in these parts, one or more. When tubercle waste fastens on the ear, it causes, or often causes, loss of the ossicula, impairment or loss of hearing. When it settles in the eyes it produces scrofulous ophthalmia. When it affects the larynx, as in laryngeal phthisis or consumption, it impairs the voice, and finally takes away life itself. Tubercle in the numerous small glands

of the mesentery, or between the intestines, causes mesenteric disease, the *tabes mesenterica* or mesenteric consumption of the old physicians. When tubercle besets the throat or implicates the skin and subcutaneous tissues, it bears the well-known designation of scrofula or king's evil, *the* evil! And when the tubercle waste or excretion is lodged in the lungs, conjointly or not with other organs, it causes consumption, decline, or decay, as it is variously named, the most frequent and destructive of all maladies.

16. The horse, the cow, the dog, the cat, the rabbit, singing birds and others, when subjected to the conditions already stated, are severally liable to tubercle deposits. Lions, tigers, apes, and other wild animals, when closely confined in our menageries, all become tubercle infested, and sooner or later, if not otherwise cut off, die therefrom. There is no special English designation for consumption in the horse or cow, but by the French it is termed *pommelière.* When brutes come to labor under deposits of animal excretion or waste, they sicken and languish, as man himself, under like circumstance, sickens and languishes, become unequal to healthy effort, and, unless purposely destroyed, in the end perish.

17. It follows from the foregoing that any and all habits, customs, arrangements whatsover, whether as regards man or the lower animals, that militate against healthy respiration, are to be condemned, and if it be possible superseded. Such habits, such customs, such arrangements, leading as they do to excretion deposits, are just as chargeable with the death of the victims, as a dose of arsenic or other poison, causing death, is also chargeable with the victim's death.

18. To obviate the fatal waste deposit, it is requisite to breathe pure air incessantly; in short, to let it habitually into our dwellings, and to go habitually out into it. It is requisite to clothe the body warmly, to nourish it well, to wash it daily, and at night to yield incessant admission to the fresh untainted atmosphere, so that in respect of purity there shall be no distinction between the air of the sleeping-chamber and the air outside the dwelling. Pure, fresh, untainted night air, the body otherwise being properly clothed, and covered, and nourished, is *not* unwholesome. It is only the night air of the close, unpurified sleeping-chamber that is unwholesome.

19. To say that the air of many sleeping-rooms, crowded perhaps with furniture, hangings, carpets, and living inmates, the windows perhaps not made to open, or at least never opened at their upper portion, bedrooms possibly further reeking with uncleanness, infection, and impurity, to say that the air of such rooms is fitted for healthy respiration, would be to insult the most poverty-stricken intelligence.

20. To avoid waste excretion or tubercular deposits, then, in all their forms and all their disastrous results, it will prove needful to breathe day and daily, day and night in fact, winter and summer, and always, a pure, untainted atmosphere. It will be needful to breathe it ourselves, and to procure it for our children and dependents, as well as for the animals which, for our use and pleasure, the Deity has subjected to our control.—*Am. Med. Gaz.*, August, 1857.

Art. II.—*The Glycogenic Function of the Liver disproved.* Translated by J. P. Barbot, Apothecary; from the Paris *Gazette Hebdomadaire de Médecine et de Chirurgie*, of August 28, 1857.

On the 27th July, 1857, Dr. Louis Figuier, *agrégé de chimie*, to the Paris School of Pharmacy, read before the Academy of Sciences, a memoir entitled: New facts and considerations against the existence of a Glycogenic function in the Liver,—from which we extract the following final

RESUMÉ ET CONCLUSIONS:

I deem it proper to condense into the form of simple propositions the facts enunciated in this memoir, all of which concur in disproving the existence of the glycogenic function of the liver.

1st. In order to prove this glycogenic function, M. Bernard laid great stress on the fact that sugar was found in the liver exclusively. It is shown, on the contrary, that instead of existing in one organ exclusively, sugar is found in all the parenchymatous organs that receive blood, such as the heart, lungs, spleen, etc., and also in the blood of the general circulation.

2d. The same physiologist has asserted that no glucose could be found in the chyle. It is now a recognized fact that sugar exists in the chyle of animals fed on meat exclusively, which fact is of itself sufficient to refute the doctrine of a glycogenic action in the liver. In fact, it furnishes us an evidence of sugar formed in the intestinal canal, and thence getting into the general circulation through the chyliferous vessels and thoracic duct, without having entered the liver at all.

3d. To prove this same function, M. Bernard laid great stress on the fact that he found no sugar in the blood of the vena porta. It is now shown that the blood in this vessel contains a product which evidently belongs to the family of sugars; since it exhibits all the characteristics peculiar to the general group of saccharine matters, *i. e.*, it is reduced by the *liqueur cupro potassique*, (Trommer's test); it is not precipitated by the sub-acetate of lead, and it undergoes the alcoholic fermentation after having been boiled with a diluted acid.

4th. The blood of the general circulation contains the same saccharine formation as the vena porta; it is reduced by Trommer's test; is not precipitated by sub-acetate of lead, and ferments after having been boiled with diluted sulphuric acid.

5th. In the human economy, sugar does not constitute an uniform product whose properties are constantly identical, but a series of compounds belonging to the general group of *glucosic* products, which are successively modified, and are at last converted into the fermentable sugar found in the chyle and liver.

6th. In the intestinal canal of animals that have been for months fed on meat exclusively, there is found a compound, of sweetish taste, which after having undergone various chemical changes either in the blood of the vena porta or by the action of the intestinal villi, is perhaps the origin of this fermentable sugar found in the liver and chyle.

7th. Nitrogenous food introduced into the alimentary canal is converted into sugar by a series of decompositions, the theory of which, chemistry explains to us.

ART. III.—*Physiology of the Spinal Cord:* By M. CHAUVEAU. Translated from the *Gaz. Heb. de Méd. et Chir.*, of Sept., 1857: By J. P. BARBOT, Apothecary.

M. CHAUVEAU, of Lyons, read a paper in the Academy of Medicine of Paris, on *the study of the functions of the spinal marrow*, a summary of which follows.

The author's aim in this work was to combat the new ideas announced on this subject, by M. Brown-Séquard.

In the first part of his work, M. Chauveau examines whether it is true that *sensitive impressions pass from one side of the spinal marrow to the other, on reaching this organ previous to their passing on to the common sensorium.*

According to M. Brown, not only is sensibility preserved, but there is hyperæsthesia on the side and in the rear of the section; and insensibility on the opposite side. M. Chauveau maintains: 1st, that the motions produced by irritating the member on the side of the section, are due (even when they are generalized in the whole trunk,) to a reflex action; 2d, that when pain exists, the phenomenon is complex; there is at the first reflex contraction, then pain produced by this contraction, as he has been able to convince himself frequently by experiments, and particularly in solipeds.

He formally denies the assertion of M. Brown that there is insensibility on the opposite side; he witnessed pain always and in all the animals that he experimented upon. In proof of his statements he exhibited to the Academy two pigeons in which the right lateral half of the spinal marrow had been divided on a level with the dorsal curve, and which, when pinched on the left side, exhibited keen sensibility.

In a second part of his memoir, M. Chauveau examines whether it be true that *the sensitive impressions are conveyed to the brain by the central grey substance*, and in this also his conclusions differ from those of M. Brown. If, in an animal, in which the anterior and posterior fasciculi and the lateral fibres of the spinal marrow have been divided, in such a way that the grey substance alone has been left untouched, we still observe some signs of pain; this is not, he says, produced by direct irritation but by irritation communicated to organs still possessed of sensibility—producing automatic contraction and subsequent pain. The conclusions of M. Chauveau are: 1st, that sensitive impressions do not cross one another on reaching the spinal marrow; 2d, that they are not conveyed to the brain by the central medullary grey substance.

M. Chauveau observes that if the principles laid down in the above conclusions are opposed to those of M. Brown, a majority of the facts observed by that able experimenter are nevertheless exact and of the greatest interest. They were only more complex than M. Brown thought them to be.

By studying the reflex phenomena, in a novel manner in many respects, M. Chauveau has been enabled to reduce these facts to their simplest expression and show their true signification. (*Commissaires:* MM. Longet, Bérard et H. Boulay.)

Art. IV.—*Progress of Anæsthetics.*

1.—*Chloroform. Archives Générales de Médecine:* Translated by Stanford Chaillé, M. D.—Dr. Ludger Lallemand, whose report on chloroform has justly excited a very lively interest, has addressed to the Academy of Medicine a letter, which we reproduce almost entire, because it sums up the conclusions of his report presented to the Society of Emulation.

The following are the results of our experiments upon animals appertaining to different classes of vertebrata, some of which results are very different from those stated by other experimenters, namely:

The action of chloroform is in direct ratio to the activity of the respiration and circulation. The rapidity and intensity of the anæsthetic phenomena are also in direct ratio to the quantity of chloroform administered in the same time, that is to say, to the degree of concentra-

tion of the inhaled vapors; but they are identical in their nature and order of development.

Chloroform, by an affinity of election accumulates in the nervous centres, the excito-motor powers of which it suspends, as also the sensibility and motor power of the cerebro-rachidian nerves; chemical analysis proves that the brain and spinal marrow contain about ten times more chloroform than the blood, and the vascular organs, as the liver.

Under the influence of chloroform, we have always seen the respiration cease before the circulation; the cardiac and arterial pulsations have continued from one to six minutes after the disappearance of all respiratory movements.

We have seen all animals die that we have abandoned, after the disappearance of respiratory movements, the circulation being still active.

We have restored to life, ten times in twelve, dogs and rabbits by pulmonary insufflation, by breathing into a sound introduced into the trachea; the insufflation having been applied only after the cessation of the heart's contractions, and having been continued, until respiratory movements were aroused.

Insufflation acts by eliminating artificially the chloroform, and by stimulating the excitability of the nervous system. Chloroform is very rapidly eliminated from the organism; this elimination is normally effected by the pulmonary surface, and the cutaneous surface takes but a very limited part therein. Death can be explained neither by paralysis of the heart, nor by asphyxia due to the insufficiency of air penetrating the lungs during etherization, for we have caused death with the succession of the phenomena above mentioned, by injecting chloroform vapor into the jugular vein; farther, we have restored to life dogs, whose hearts had ceased to beat, by the insufflation of nitrogen gas (*gaz azoté*).

It is true that the necropsies have shown a plethoric state of the vascular system from black blood, analogous to the condition observed in asphyxia; but this fact results from the persistency of the heart's action, and from the diminution of the permeability of the lungs in consequence of the arrest of the respiration, a double phenomenon which produces the accumulation of blood in the right cavities of the heart.

It appears to us that death has its first cause in the abolition of the functions of the nervous centers, losing successively their vital powers under the stupefying action of chloroform, which has accumulated in the cerebro-rachidian mass.

As the intensity and rapidity of toxical action are proportionate to the concentration of the chloroform vapor, it appears to us indispensable,

for the security of surgical anæsthesia, that it should be diluted with as large a portion of atmospherical air as is possible.

II.—*On Ocular Anæsthesia:* By M. CHASSAIGNAC, Surgeon to the Hôpital Lariboisiere, Paris.—[M. Chassaignac believes that chloroform is destined to render great service in the treatment of ocular diseases, provided its mode of action be thoroughly understood. He has examined carefully the influence of this agent on the eyelids, conjunctiva, on the motions of the eye, and also on the contractions of the iris.]

1. When the process of inhalation has been carried sufficiently far to obtain muscular resolution, the constant effect of chloroform is to render the eyeball completely motionless. This symptom is by far the most constant of all, since the dilatation of the pupil undergoes numerous variations, and is sometimes succeeded by contraction, in the most advanced stage of anæsthesia.

2. Another phenomenon, which appears equally to deserve notice, especially as regards the operation for cataract, is, if we may borrow the expression of Barthez, the "power of fixity" which the eye acquires under anæsthetic influence; whatever its position may happen to be when the state of anæsthesia begins, that position is invariably retained throughout the whole duration of the experiment. During the period of insensibility, the eye is usually turned upwards, and lies concealed under the upper eyelid; it then becomes quite impossible to move it by the mere pressure of the fingers, without the assistance of an instrument—a fact of the highest importance, since it might in certain cases become an obstacle to the operation for cataract.

The two preceding propositions may at first sight appear identical, "immobility" and "fixity" being synonymous; but if language establishes no great difference between the words, clinical facts do so, and in the following manner. If we compare the state of the eye on the dead body with that under which it is placed through anæsthetic influence, we find that the eyeball on the dead body lies no doubt motionless, but the fingers easily move it in any given direction; we can incline it downwards, upwards, right or left, without difficulty. In the state of anæsthesia, not only is the eyeball motionless, but it lies fixed in a determinate position, which the pressure of the finger is totally insufficient to alter. As a whole, the eyeball may of course be displaced, but it ceases entirely to revolve either on its vertical or on its transverse axis. This fact, which is of the highest importance in a physiological point of view, is worthy of attention. It is evidently due, in our opinion, to the simultaneous tonic contraction of the four recti and the two oblique muscles, which maintain the eye in a state of perfect immobility. Is it not, however, an interesting fact to the physiologist, that while chloroform places the muscles of the entire body in a state of resolution, its action should be directly the reverse on the muscles of the eye, which enter, under its influence, into a species of spasmodic contraction, entirely at variance with the general state of the patient?

3. The immediate consequence of the above-mentioned fact is the tendency of the humors contained in the different chambers of the eye to escape as soon as the membranes which surround them are divided.

4. The action of chloroform on the eye may be divided into two distinct periods, the results of which ought not to be confounded—1st, during the state of excitement; 2ndly, during the state of collapse.

Irritation is the first effect produced by chloroform on the conjunctiva; we therefore see most patients close their eyes during the first period of inhalation. The next result is, a modification of the contractile powers of the iris; and this exceedingly complicated part of its action deserves special attention. During the first period of anæsthesia, and consequently in the stage of excitement, chloroform produces a considerable dilatation of the pupil; but, strange to say, at the moment when insensibility is complete, the pupil, formerly dilated, contracts a few instants after the eyelids are opened. This physiological action seems to belong to the singular class of phenomena described under the name of reflex actions; for in that stage the brain receives no luminous impressions from without. We therefore see that surgeons who expect to find the pupil expanded under the influence of chloroform might be considerably surprised by the phenomena we have just described. This fact has led us to state in another paper that chloroform is a bad dilator of the pupil.

5. The eyelids present another singular phenomenon, equally deserving our attention, and which we have described under the name of "immobilité cadavérique des paupières." In a certain number of cases, when anæsthesia has been carried to a considerable extent, the eyelids remain motionless, and if opened do not close again. This remarkable fact appears almost alarming to those who witness it for the first time. So great is the absence of muscular tonicity that it seems impossible the vital powers should not be deeply endangered after spontaneous action has so completely disappeared.

6. Another fact, which should always be present to the operator's mind, is the sudden re-appearance of the pupillary contraction, according to laws hitherto unknown. The pupil is often seen to contract after considerable expansion, without any known cause. This takes place in the operation for cataract, after the lens has been removed.

7. The age of our patients does not seem to exercise any definite influence upon the general results of the experiment; it seems, however, that constitutional debility facilitates the action of chloroform upon the eye, the patient's vital resistance being considerably diminished.

The study of these peculiar phenomena is far from being so easy as one might be led to imagine. There exist innumerable difficulties and causes of error.—*Lancet, Braithwaite's Retrosp.*

III.—*On the Vapor of Amylene in Midwifery.*—[This substance is yet upon trial at the various London Hospitals, but a positive opinion cannot yet be pronounced upon its merits.]

There is one thing that should be remembered when giving it, and that is, to use an inhaler, and not a mere piece of lint. How well soever this may occasionally answer with chloroform, it does not do so well with amylene. It has already been used in midwifery practice by Dr. Tyler Smith with the most satisfactory results. He has observed to us, that he administered it on a folded towel, to the extent of about thirty, forty, or fifty drops at a time, on the coming on of each pain.

It produced rapidly a state of insensibility to pain, the uterine contractions remaining undiminished in force and frequency. The recovery of sensibility after pain was over, and the towel removed, was always almost instantaneous. At the time of the birth of the child, the insensibility was as complete as though chloroform had been used. The placenta was detached, and came away readily, and the uterus afterwards contracted well. The pulse was found to be little, if at all affected; the child was vigorous and healthy, and did not seem at all influenced by the anæsthetic. Dr. Tyler Smith thinks the advantages, as compared with chloroform, in midwifery, would seem to be the suddeness of its influence and its asserted safety, and the rapid disappearance of the insensibility after the amylene is withdrawn. The only disadvantages he could perceive are the pungent smell and the large quantity consumed.—*Ibid.*

IV.—*Use of Chloroform in Retention of Urine.*—An intemperate cabman, aged 52, was admitted into a medical ward at Guy's, a few days ago, on account of chest symptoms. It appeared that he had had gonorrhœa twelve years before, and had ever since had more or less difficulty in passing his water. After having been in the hospital nearly three weeks, he was seized with retention of urine. The dressers and house surgeon made patient and repeated attempts to pass a catheter, but without result. There was little doubt that the stricture was a permanent one, which had been closed by inflammation. In February the retention had become complete for two days; the symptoms were becoming very urgent, and Mr. Cooper Foster was accordingly called to see him. Opium had been most freely given. Having failed in persevering attempts to introduce a No. 2 catheter, Mr. Foster determined to administer chloroform, and, if needful, to puncture the bladder by the rectum. When completely insensible, another trial was made with a No. 3, which now passed most readily. We cite this case as important, because it proves beyond dispute the influence of the anæsthetic state in relaxing an otherwise impermeable stricture. An opiate treatment had been fairly tried before, and had failed, and the catheter had also been found useless in the hands of several well-practised surgeons. The plan of administering chloroform in cases of obstinate stricture and retention, is one in wide use, both in hospital and private practice; but, as it is not yet in such general favor as it deserves to be, we have thought that so pointed an example of its advantages might be worth bringing before our readers.—*Med. Times and Gaz.; Cincinnati Med. Observer.*

V.—*On the anti-hemorrhagic action of Chloroform during operations:* By M. Chassaignac, Surgeon to the Hospital Lariboisière, etc.—It is impossible for surgeons, who have performed a great number of operations with the assistance of chloroform, not to have been struck by the small quantity of blood lost during severe operations by certain subjects submitted to the action of this anæsthetic. It is for my part a remark that I have made a long time back. Without otherwise attaching importance to this particularity, I have not been able to prevent myself

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comparing the smallness of these losses of blood with the extent of those which have taken place during great operations performed without the assistance of chloroform. Reflecting on the mechanism, in virtue of which could be produced such a result, I understood very quickly that a subject in whom the physical and moral excitement caused by an operation accelerated the pulse to 120, ought by an open artery to lose more blood than the one who had only 60 pulsations a minute. I believed that I had found in this fact something very advantageous, and of direct application to practice, with respect to hæmorrhages that take place during operations. But to draw conclusions, and, above all, conclusions applicable to practice, something else besides impressions and reasonings, however plausible they might be, was necessary. I resolved, then, to submit to special observation a certain number of patients operated upon at the Hospital St. Antoine. It is the result of these operations which I desire to submit to the attention of surgeons. Eleven subjects, of whom three underwent amputations of the thigh, four of the breast, one of the leg, one an entire resection of the first metatarsal and of the first cuneiform bone, one a resection of the humerus, and one of the inferior maxillary bone, have furnished me the occasion to state that, whether in the period of collapse or in the period of anæsthetic tolerance, the losses of blood which constantly attend similar operations were enormously lessened, and that particularly in two cases (an amputation of the breast in a woman, and of the thigh in a man) the operation was performed, so to speak, without any loss of blood. In the latter case, it is true that the compression of the femoral was made with great exactitude; but that which proved to us that the chloroform had a considerable share in these results was, that when I ordered my assistants to suspend compression, all the surface of the wound, with the exception of the principal artery, which furnished a very moderate jet, gave but a very inconsiderable quantity of blood, and that we were obliged to wait for the cessation of the anæsthetic state to render possible the ligature of the secondary arteries. As to the patient with the amputation of the breast, who was a little more than twenty years of age, and had come to be operated upon for an adenoid tumor of the right breast, there did not literally flow a teaspoonful of blood during the operation. I was wrong here in not waiting for the awakening of the patient before proceeding to the dressing, and it is worth remembering, that there happened a hæmorrhage which did not show itself until a certain time after the application of the dressing, and several hours after the patient had been taken back to her bed. It is not only with regard to arterial hæmorrhages that chloroform can be considered as diminishing loss of blood; it is with respect also to those of a venous character. We know in fact, that the badly restrained struggles of a patient, dispose him in a particular manner to venous hæmorrhage; for he is under the influence of two causes which play a considerable part in these sorts of hæmorrhages—first, an imperfect respiration; and secondly, energetic muscular contraction. Chloroform removes these two causes, but only by producing collapse or anæsthetic tolerance.

If we wish to render a rational account of the means by which happen the phenomena which occupy us, it will be sufficient to compare

briefly the state of a patient operated upon under the ordinary conditions with that of one who has arrived at the period of tolerance. With the first, the fear of the operation about to be performed hurries the pulsation, increases the force of the impulse of the walls of the heart, and retards the free arrival of venous blood, not only in consequence of the impediment brought to respiration, but also by the efforts which the patient makes.

Thus, increase in the number of pulsations, augmentation in their intensity, stagnation of the venous blood, such are the circulatory conditions of the patient who submits to an operation without the employment of anæsthetics.

If these have been administered, what do we see? The pulse is less frequent and less strong, and there is a normal state of the respiration and venous circulation.

In comparing situations thus opposed, it is not difficult to understand the difference of results with regard to the hæmorrhagic tendency.

Let us examine now what conclusions we can draw for practice from what has just been laid down. In this respect, and as the result of our observations, we might note—

1st. That the sedative action of chloroform during the period called tolerance diminishes in the patients—

A. The number of pulsations.

B. The force of the impulse of the beats of the heart.

C. The stasis of the blood, the cause of venous hæmorrhages.

2d. That the diminution of hæmorrhage during the period of tolerance can render real service in the cases of operations which suppose the possible opening of a great number of vessels.

3d. That if it is sometimes useful, as has been recommended by some surgeons, not to make the dressing until a certain time after the operation, this advice becomes, so to say, obligatory after the employment of chloroform, the chances of an ulterior hæmorrhage being so much the greater as less blood has been lost during the operation.—*Ibid.*

VI.—*Death from Chloroform.*—[In a case which occurred at St. Thomas's Hospital, and which caused great excitement, the following were the opinions of the medical gentlemen examined by the coroner, as to the propriety of giving it in such a case, the man being in delirium tremens.]

Mr. Solly saw the patient the day previous to the operation, and he thought him a healthy subject. Mr. Simon also agreed generally in this opinion. Mr. Simon was under an impression that the death was epileptic in the present instance, and as no person could, in the usual routine of hospital practice, discriminate such patients, he believed everything that was right had been done. As regards *delirium tremens*, Mr. Simon believes we want facts; but its striking analogy to some of the worst forms of epileptic and hysteric seizures would make him cautious. Mr. Paget conceives the existence of *delirium tremens* to be a very strong contraindication to the use of chloroform—indeed one of the strongest. Mr. Solly, on the opposite hand, agrees with Dr. Snow; and as chloroform is a cure for *delirium tremens*, he would not be afraid

to give it to such cases. That drunkards require more chloroform is the experience of Guy's Hospital; and hence *delirium tremens* patients may get an overdose, or the cumulative dose may kill when least expected—may strike more suddenly on some internal organ. This practical remark is due to Mr. Callaway. Dr. Black is inclined still to believe that patients are asphyxiated in chloroform, as in carbonic acid; and, as drunken patients, or those under delirium tremens, are too often impassive to surrounding circumstances, they may get an overdose without making the usual resistance.—*Asso. Med. Jour.*

VII.—*Simple Method of Preventing Accidents from Chloroform.*—[The following plan is rcommended by a correspondent of the 'Medical Times and Gazette' as one which the author has found uniformly successful both in midwifery and surgical cases. He says:]

Although I have used it at least one thousand times, I have never seen the least bad consequences follow from it, and I consider that this success depends greatly on the precaution I take before administering the chloroform; this simply consists in administering a glass of spirits or wine—I prefer the former, even to ladies. The wine, or spirits, seem to exercise no effect on the chloroform, while their stimulating quality keeps up the action of the heart during the time the patient is under chloroform, and prevents sinking. I had occasion some years ago to perform a slight surgical operation on a lady who was fearfully afflicted with asthma and excessively nervous. Her husband being a medical man, now in the west-end of London, objected to the use of chloroform in such a case, but I assured him that the wine would prevent any evil happening. The operation was performed, the patient saved from the pain of it, and to her great relief she had no return of asthma for a long time, and when it did return, she had recourse to the chloroform, which, for a time, gave her great relief. On one occasion, while I was removing a scirrhous tumor, the patient, who was rather advanced in life, got an overdose of chloroform, and we had great fears of her being permanently roused, and I do believe her recovery was owing entirely to injecting a glass of brandy and water into the rectum. The accident happened owing to the gentleman who had charge of the chloroform getting so interested in the dissection, that he forgot to raise the towel off her face till respiration had become imperceptible. However, she soon rallied.—*Med. Times and Gazette; Braithwaite's Retrospect*, 1857.

VIII.—*On the deaths following the inhalation of Chloroform in surgical operations:* By T. HOLMES, Esq., F. R. C. S., Surgical Registrar to St. George's Hospital.—These papers contain the records, carefully tabulated, of fifty deaths under chloroform, occurring during the years 1848–55 inclusive, in thirty-nine of which post-mortem examinations were made, and in the great majority of which the chloroform was given by qualified medical men. These records are compiled after a careful search through the volumes of the medical periodicals published at home and abroad; and Mr. Holmes states that he has not wilfully

omitted any, except two, both of which were extracted from non-medical papers without any guarantee as to their authenticity—one evidently an American hoax.

The following facts arise out of this inquiry:

1. *Sex.* This is noted in 44 cases; 21 were males, 23 females.

2. *Age.* All were persons in the middle period of life; no children, and only one man above the age of 60.

3. Most of the operations were of a comparatively trifling character.

4. The chloroform was given on a handkerchief, cloth, towel, or piece of lint, in 27 cases; in a sponge in 4; in an inhaler or other apparatus (not described) in 8; on Dr. Snow's inhaler in 3. In 8 cases the apparatus is not specified.

5. The quantity used was ʒj and under in 13 cases: ʒij and under in 12; ʒij–℥ss in 3; a large quantity in 8; not specified, 14.

6. The time is noted in 32 cases: 2 minutes and under in 15 cases; 2–5 minutes in 6 cases; 5–10 minutes in 6 cases; and above 10 minutes in 5 cases (in one of them, 40 minutes).

7. The symptoms are intelligibly described in 36 cases.

In 19 there was no previous struggle; in all of these, except one, the pulse ceased before or at the same time with the inspiration.

In 17 there was previous struggle; in 4 of these lividity and failure of respiration was next noticed; in 13, failure of the pulse, or of the bleeding from the wound, generally preceded by pallor.

8. Of 33 cases in which post-mortem examinations were made:

(*a*) Eight, viz.: Nos. 15, 22, 31, 32, 34, 42, 46, 50, showed no appreciable morbid appearances, *i. e.*, referable to chloroform: for one (No. 34) is said to have presented extravasation of blood in the spinal canal.

(*b*) The *heart* is reported *soft* or *flaccid* in 10 cases, Nos. 3, 9, 16, 19, 20, 23, 24, 27, 30, 46; *fatty* in 9, Nos. 26, 29, 33,* 35, 36, 37, 38,* 41, 45. The case marked thus* were two of the oldest patients in the list, and the morbid appearance seems not to have exceeded tne traces of fatty degeneration usually found at that period of life. The heart was *flaccid* and *empty* in 7 cases, Nos. 2, 5, 8, 9, 10, 14, 48; *full* in 1, No. 1.

The *blood* was usually fluid; air was found in it in 3 cases, Nos. 2, 5, 24.

(*c*) The *lungs* were congested in 14 cases, Nos. 1, 2, 5, 8, 9, 10, 16, 19, 20, 23, 28, 45, 46, 50.

(*d*) The *brain* was congested in 7 cases, Nos. 1, 14, 16, 20, 23, 28, 44.

(*e*) *Other viscera* were congested in 6 cases, Nos. 1, 10, 16, 20, 24, 30.

(*f*) There was organic disease in 4 cases besides that of the heart, viz.: aneurism, No. 39; phthisis, No. 3; atheromatous arteries, Nos. 33, 38. The latter had also granular degeneration of the kidneys. It will be observed that the latter two had also fatty degeneration of the heart; but to a slight extent.

In these papers Mr. Holmes' object has been to show what the mortality after chloroform has really been, and to inquire whether the results of *post-mortem* examination have given us any clue for assigning it to its efficient cause—and in reference to these two points the facts appear to show—

1. That the reported mortality in the British Islands has been less than six *per annum;* that a great number of these cases occurred in private practice; and that as many of them were disclosed by means of coroner's inquests, it seems probable, that we do really hear of most of the fatal cases which occur in the United Kingdom.

2. That the post-mortem appearances have not been sufficient to indicate any uniform cause of death; that the importance ascribed usually to fatty degeneration of the heart is greater than experience would warrant; that, from the number of cases of persons previously in perfect health, and the rapidity with which death was produced, there is a strong presumption that the result was due to imperfect methods of administration, or carelessness on the part of the administrator. Further, from the experience of hospitals in which a rational method has been adopted and due caution exercised, we are justified in believing that chloroform is as safe in its action as any drug which produces narcotism by mixing with the circulating blood, can in the nature of things be expected to be.—*British Med. Jour.*

IX.—*On a mode of preventing the fears and apprehensions connected with a Surgical Operation:* By M. DIDAY, formerly Senior Surgeon to the Venereal Hospital, at Lyons.—In one of a series of letters, in which medical topics are treated with great soundness of judgment, M. Diday has lately directed attention, in the *Gazette Médicale de Lyons*, to a very kind mode of lessening the apprehension of persons who have consented to submit to capital operations, and which mode has been put in practice at the Military Hospital of Bordeaux. When it has been settled that a limb is to come off, the precise day is left undecided, and the patient is allowed, if the case admits of it, to forget the painful circumstances. Some morning the house-surgeon, in going round, says to the poor man, "By-the-bye, as you are to be operated upon, you may as well get accustomed to the smell of chloroform, and learn to inhale it." Thereupon he applies the mouthpiece, lets the man quiety inhale the semi-lethal vapor, and allows complete anæsthesia to take place. The patient is then carried to the operating theatre, where everything has been prepared beforehand, and every one is ready for his task. The operation is performed, and the poor sufferer wakes delighted that it is all over, and that he has been saved the pangs of trepidating expectation.—*Lancet.*

X.—*Death from Amylene.*—In the *Medical Times and Gazette*, August 8th, Dr. Snow relates a second case of death from the effects of amylene, the first having been given by him in the number for the 18th of April, of the same journal. Dr. Snow is of opinion that death resulted in this, as in the former case, from the fatal action of amylene upon the nerves of the heart, producing paralysis of the organ; that death in fact commenced at the heart, and not by asphyxia as had been asserted by M. Duvergie. The length of time the patient continued to breathe is very remarkable, spontaneous inspirations being made for three quarters of an hour after the pulse had ceased to be discernible at the wrist. The subject of this melancholy accident was a young men 24

years of age, admitted into St. George's Hospital, to have a small epithelial tumor removed from the back, by Mr. Hawkins, some of a similar kind having been removed upon three occasions and under the influence of chloroform, without any unpleasant result. It appears that in the administration of amylene, care must be taken that the air the patient is breathing should not contain more than about fifteen per cent. of the vapor. Now in the ordinary mode of administering chloroform in amylene, this cannot be regulated exactly, as the vapor is not mingled with the air by measure. In this case it appears that the patient took one or two inspirations of the vapor a little stronger than was intended, and hence the fatal result.

XI.—*Amylene condemned at the Académie de Médecine.*—M. Giraldès having recently sent a paper to the Academy, entitled "Clinical Study of Amylene," MM. Robert, Larrey and Jobert formed the committee to which it was referred. In the report read on the 18th inst., M. Jobert details various experiments and observations he has since made with this substance, both with and without apparatus; and he comes to the conclusion that amylene exerts an energetic and dangerous influence. The statement that has been made, that it is less active than chloroform, is only true when it is administered in the open air, and is explained, he says, by the rapidity of its evaporation. If only a sponge be employed, there are only produced, after a period varying from nine to nineteen minutes, muscular agitation and acceleration of pulse, effects that ensue in from five to seven minutes, if the sponge be placed in a cone of pasteboard. If an apparatus be employed, however, amylene becomes a most energetic anæsthetic, the desired result occurring in two and often in one minute. The effects of this agent are the increase of the number of the pulse by thirty or forty, the modification of the color of the blood, and the perturbation of the nervous system, inducing insensibility, coma, and the abolition of the intellectual power. It is thus a toxical agent, acting simultaneously upon the vascular and nervous systems. M. Giraldès does not advance sufficient proof that amylene is less dangerous than chloroform; and even M. Robert's proposition of employing it in certain exceptional cases is not admissible, inasmuch as amylene possesses the inconveniences, without the advantages, of chloroform. Chloroform does not, like amylene, deprive the blood of its red color; and while chloroform depresses and renders the pulse slower, amylene quickens it, producing congestion of organs. Amylene is of difficult administration, while chloroform is easily given. Chloroform has furnished to M. Jobert the same satisfactory results at all ages, and he believes that it is not more injurious in infancy than at a later period. He proposed that the conclusions of the author in favor of amylene should not be received; but as the communication is interesting in other points, the thanks of the Academy should be returned for it.

M. Velpeau proposed a stronger condemnation of amylene on the part of the Academy; for from the experiments even of the reporter, it was evident that amylene is more difficult to manage, and more dangerous in its results. In the recent case of death from it, there were not the attenuating circumstances adduced for chloroform or ether, such

as the want of skill or experience of the manipulator, since it was the inventor himself who directed the procedure. "I maintain that a substance which in so short a time, and in the hands of him who recommends it, is dangerous to such a point, that its employment ought not to be permitted, and I propose that the Academy formally reject it."

M. Larrey observed that he completely agreed with M. Velpeau, and he should have thought that M. Giraldès, after having been present at Dr. Snow's last accident, would have somewhat modified his ideas on the subject.

M. Jobert added, that when amylene is administered on a sponge, anæsthesia sometimes cannot be produced for half or three-quarters of an hour. If Charrière's apparatus be employed, it is rapidly induced, but at the expense of serious accidents. It differs from chloroform in that the insensibility it induces is instantaneous and not progressive. It produces an important modification of the blood.—*Moniteur des Hôp.; Dublin Hosp. Gaz.*, Sept., 1857.

XII.—*On the effect of Chloroform upon the result of Surgical Operations:* By Dr. JAMES ARNOTT.—[Scarcely a hundred instances of sudden death from chloroform have as yet been reported, but we can scarcely doubt that a far greater number have been concealed; but, besides this number, many die within a few hours of its administration, whose deaths have been attributed to other causes. Dr. Mouat, in speaking of soldiers who were operated upon in the Crimea under chloroform, says, that it induces nausea and depression, reäction is never thoroughly established, and the patient frequently dies from exhaustion, in from twelve to twenty-four hours. "Many of these," he says, "may be fairly termed 'deaths from chloroform,' but are never so returned." The most extensive statistical investigations which have been published on this point, are by Dr. Simpson of Edinburgh. From these tables, it appears, that the mortality from amputations immediately before the introduction of chloroform was 29 per cent., and after its introduction only 23 per cent.; but these tables, when closely examined, are found to involve the greatest fallacies.]

The first, which professes to give the average mortality of thirty British hospitals, should have shown the number of operations, and their results, at each of these hospitals during precisely the same period of time; but, instead of this, while the period of observation, as respects the only large healthy hospital inserted in the list, is limited to two years, that of the large, unhealthy hospitals of Edinburgh and Glasgow, the excesssive mortality of which almost equals that of the Paris hospitals, extends to more than three times this duration. If an equal period of observation be taken to form this average, (excluding two of the small hospitals, one healthy and the other unhealthy, on account of the period of observation respecting them being uncertain,) the table, instead of showing a mortality of 29 per cent., would show one of only 24; and, if other large, healthy hospitals, like that at Bristol had been included—such as the Liverpool Royal Infirmary, where (as appears from a published return) the deaths from amputation during three consecutive years, were only at the rate of 6 per cent.—the average

mortality of the whole would probably have been considerably less than 20 per cent.

The second table involves no miscalculation so palpable as that in the first, but it leads to conclusions equally erroneous. It gives an account of the number of amputations in which ether was administered, with the results; but what the character of the cases was in which it was used—whether the patients were healthy or worn out with disease—we have no means of judging. In all probability the best cases were generally selected, for only a few were returned from each hospital; and it was natural and proper that at first the best cases should be chosen for trial, not only those free from serious organic disease of the vital parts (a class which were long excluded), but those in which the reparative powers were most conspicuous; and a clearer proof that this was the case cannot be adduced than the fact that the etherized cases from the eight London hospitals inserted in this list, show a mortality of more than 10 per cent. below that which (as we shall presently see) exists at the present day.

But as the prospect of recovery from amputation is good or bad according to the general health of the patient, and other circumstances, if we could always select our cases, the usual mortality would probably be reduced to less than a half. As it is, all the advantage which the 302 etherized cases appear by the table to have over the non-etherized 618 of the other table (admitting the returns to be correct), does not amount to more than 1 per cent. To prove that there was not actually a loss of life, instead of a gain, from etherization, there should have been, assuming that the cases were generally selected, a much greater difference than this. A percentage of 23 deaths from amputation in the English provincial hospitals, even supposing that every case was etherized, would indicate a great increase of the usual rate of mortality before the introduction of etherization.

Another objection to the reception of this table as an argument in favor of the indiscriminate use of chloroform is, that it has reference principally to sulphuric ether as the means of producing anæsthesia, for very few operations had been performed under chloroform at the time of its publication. Now chloroform, whatever other advantages it may possess over ether, has none as regards safety; and, what is of more importance in respect to this table, it has of late years been employed much more boldly than was formerly usual. Patients were then frequently only half intoxicated by the anæsthetic, and the intoxication was kept up but for a short time. A change in this practice had not yet been effected by the singular argument, that, because a patient laboring under convulsions may be kept for a long time under the full influence of chloroform apparently without injury, the same proceeding can be adopted with impunity in the case of a patient exposed to the long-continued danger of a large amputation wound.

We shall now proceed to the consideration of tables of a very different character from the above, as respects their construction, and which disclose facts of a very different import.

Although I had long felt convinced, from reflecting on the evidently poisonous character of chloroform, that the number of sudden deaths produced by it, whether reported or not reported, was by no means the measure of the whole mortality, I was unable to obtain satisfactory evidence of this. It was by statistics alone that this point could be determined, and I had no easy access to the repertories of the necessary facts preserved in hospitals. At last my attention was directed to the Statistical Reports of Operations which have appeared for several years past in the 'Medical Times and Gazette,' by reference to them in Sir Benjamin Brodie's recently published paper on Lithotrity. On examination, I found that these reports were all that I could have desired. A monthly account is given of the whole of the operations during the last three years. Their accuracy is assured by the circumstantiality with which every case is mentioned, and by the fact that they were not drawn up with a view to the settlement of any particular question in practice. The reporters of these statistics have been under no considerable bias; they have been actuated solely by a desire to promote surgical science. If their returns have a fault, it is certainly not the overstatement of the mortality; for, almost every month, a large number of cases are mentioned as being still under treatment; and although the fatal issue of a few of these is afterwards reported, it is probable that other deaths have happened in consequence of the operation, but at too long a period after it to be known to the reporter or to be recorded by him. It might at first sight appear desirable to have reports for a longer period than three years, but were the period more extended, any such comparison as that we are now making between the results of operations becomes imperfect or impossible by the advancing improvements altering the circumstances.

In the 'Medical Times and Gazette' there are separate statistical reports both of the London and Provincial Hospitals; but I shall restrict my attention to the first, for the following reasons. The principal is, that the hospitals in the provinces are too far apart, and differ from each other in too many circumstances, such as climate, site, and character of the patients frequenting them, to render it possible to form an estimate of their average mortality before etherization was introduced, from the very few published returns of the results of amputations in the Provincial Hospitals at that time. Another reason is, that I am not sure that the administration of chloroform has been so universal in operations in the country as it has been for many years past in the metropolis. In London, on the other hand, there are many large hospitals furnishing the requisite number of facts, and they are all under nearly the same kind of general management, surgical practice, etc. We have authentic returns also of the mortality after amputations in some of the large London Hospitals before ether was introduced, from which, in consequence of the similarity of circumstances just alluded to, we can construct a sufficiently correct estimate of the general mortality for comparison with the present rate. The following table has been constructed from these returns.

TABLE I.

Showing the Average Mortality after Amputations in the Thigh, Leg, and Arm, in four London Hospitals before the Introduction of Chloroform

Hospitals.	Date of Observation.	Reporter.	Primary Amputations.		Secondary Amputations.		Total.	
			Cases.	Deaths	Cases.	Deaths	Cases.	Deaths
University College...	1835—40	Mr. Potter.	8	3	50	7	58	10
St. Thomas's.........	1842—47	Mr. Smith.	20	7	29	6	49	13
University College...	1841—46	Mr. Cadge.	7	4	38	10	45	14
Bartholomew's.	1846	Mr. Haig.	8	1	14	3	22	4
							174	41

The great diversity which appears in the above table between the two equal periods of observation at University College Hospital, is a striking illustration of what has been termed a run of good or bad luck in the practice of the same surgeon, for Mr. Liston was the principal operator at the hospital during both periods; and it shows, also, how unsafe it would be, unless for a very long period, to rely on any particular hospital as a standard. The return of deaths from amputations at St. Thomas's is heavy, and I might have been justified in rejecting it as being of too private a nature to have the requisite authority; but, in order to prevent any cavil, or appearance of selection, it is retained; and, for the same reason, I have omitted the only other return of amputations which I have been able to find, as respects the London hospitals: objection may be made to it, because the mortality is much below the usual average. This return is from Guy's Hospital, and is mentioned by Dr. Fenwick in his elaborate paper on the statistics of amputation, in the 'Edin. Jour. of Med. Science' for 1847. The period of observation is from 1843 to 1845; the cases are 36, and the deaths 4, or at the rate of 11 per cent. Were this return added to the others in the table, it would reduce the average of the London Mortality to less than 20 per cent., or one fatal result in five amputations.

The present mortality of the London Hospitals is shown by the following tables, into which the several returns in the 'Med. Times and Gazette' have been condensed.

TABLE II.

Showing the Mortality from Amputation of the Thigh, Leg, and Arm, performed under Chloroform in the London Hospitals during Eighteen Months, from June, 1855, to June, 1856, inclusive.

Hospitals.	Primary Amputations.		Secondary Amputations.		Total.	
	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths
St. Bartholomew's	1	..	23	7	24	7
St. Thomas's	4	3	12	3	16	6
Guy's	15	10	34	3	49	13
London	11	2	13	4	24	6
St. George's	6	3	15	5	21	8
University College	3	2	14	3	17	5
King's College	1	1	8	3	9	4
Middlesex	1	1	5	2	6	3
St. Mary's	5	3	12	3	17	6
Westminster	..	..	2	..	2	..
Charing-Cross	1	1	9	2	10	3
Metropolitan Free	..	..	2	..	2	..
Hospital for Sick Children	..	..	1	..	1	..
Seamen's	..	..	5	..	5	..
Marylebone Infirmary	..	..	1	..	1	..
Total	48	26	156	35	204	61

TABLE III.

Showing the Mortality from Amputation of the Thigh, Leg, and Arm, performed under Chloroform in the London Hospitals, during Three Years, from July, 1853, to June, 1856.

	Number of Cases.	Number of Deaths.
First Year	144	57
Second Year	150	50
Third Year	136	41
Total	430	148

It appears by comparing these with the foregoing table, that the mortality in the London hospitals has increased since the introduction of etherization from 21 to 34 per cent., or to vary the expression, instead of amputation being fatal in a less proportion than 1 in 4 of those operated upon, it now proves fatal in 1 in 3. Is not so enormous a sacrifice of life too high a price to be paid for anaesthesia, even granting that this cannot be otherwise obtained with perfect safety? Is life to be held as nothing when compared to pain?—*Med. Times and Gaz., Braithwaite's Retrosp.*

ART. V.—*Medication of the Respiratory Passages.* (Académie de Médecine, Paris, August 25, 1857.) Translated by JAMES JONES, M. D.

DR. TROUSSEAU read a report on a memoir of Dr. Loiseau entitled: *A simple and easy process whereby to penetrate into the respiratory passages in order to cauterize them*, to extract false membranes, to dilate the glottis, and to introduce all the pulverulent or liquid substances useful in the treatment of croup, as a substitute for tracheotomy when not acceptable.

The reporter stated that the number of cures obtained through tracheotomy, had removed in late years the species of interdiction which was laid on that operation. Nevertheless, it did not prevail among the mass of physicians, and is only practised by a small number. The majority discountenance it either on account of its difficulty, or the insufficient proof of its utility.

After having seen many fatal cases of croup in which tracheotomy, although indicated, was not performed, Dr. Loiseau has conceived certain instruments and a practical method for penetrating into the larynx as we do into the pharynx. This invention dates from the year 1840.

Dr. Green, of New York, had already suggested to reach the interior of the larynx by a stiff whalebone with a curve terminated by a small sponge, of which the introduction was facilitated by a tongue-depresser, which in his hands was a good instrument. In form a large spatula, concave beneath, with a horizontal part for the tongue and the handle at a right angle, it can be held without masking the interior of the mouth and thus completely exposes the epiglottis. Nevertheless, it is very difficult to penetrate between the aryteno-epiglottic folds with the end of the whalebone, by reason of their spasmodic contraction, and even on the dead body we succeed only one time in four.

The process of Loiseau is more simple and it is infallible. He protects the base of the left forefinger by a metallic ring of about an inch in height, and introduces it rapidly and far back into the mouth, so that the ring is placed between the molar teeth and holds the jaws open. With the free extremity of the finger at the same time that he depresses the tongue, he seizes the epiglottis, raises it, and shoves the pulp of the index between the folds. Nothing is then easier than to slide a laryngeal tube along the finger, which tube is no other than Chaussier's. The escape of air from the end of the tube proves its entrance into the larynx. It only remains then to apply by means of this tube as a conductor, either the nitrate of silver or any other substance contained in a little cavity in the side of a flexible metallic rod.

In substituting the forceps for the laryngeal tube, we can by a similar process extract foreign bodies which have slipped into the air passages.

In May, 1839, Dieffenbach having used the same method, employed in the identical style, in a case of croup, to him belongs the priority. The reporter believes that Loiseau was ignorant of this fact, which, not having been published, only came by accident to the knowledge of the committee.

In another part of his memoir, the author prefers the employment of tannin in membranous angina to the exclusion of cauterization, which treatment has met with uniform success in *many hundred cases* observed by himself. Dr. Trousseau having recalled to mind that Areteus had already boasted of gall-nuts and tannin in the Egyptian and Syrian ulcers, which nothing but diptheritis demanded, if in some of his cases, Loiseau had not confounded membranous angina with that disease. He had seen Loiseau's practice succeed, but could not consent to abandon caustics.

As to Loiseau's operation, recommended previously by Reybaud—which consists in leaving a canula permanently in the glottis—he condemns it as barbarous and impracticable.

In conclusion, he thinks that the method of catheterizing the larynx in this memoir of Loiseau, is a good substitute for tracheotomy, and ought in all cases to be used before this operation. He proposed, therefore, to thank the author and to publish his work.—*L' Union Médicale.*

ART. VI.—*A Summary of Marshall Hall's views on Apnœa or Asphyxia:* Prepared by STANFORD CHAILLÉ, M. D.

AMONG the many contributions of the late Marshall Hall to medical science, none have excited so universal attention in the past eighteen months as his "Ready Method" of treating apnœa. He claims for it the merit of being founded in physiological reasoning and experimental facts, supported alike by theory and by practice, and of carrying with it the invaluable stamp of common sense. Many respectable members of our profession in his country, have bestowed on him unwonted praise for this discovery, and scarce a month elapses, that successful cases of recovery by his method are not reported closing with a tribute to his genius. His rules, and his views in support of them deserve attention from the importance of the subject, from the ability of both the propo-

ser and his arguments, and from the extraordinary success reported to have attended their adoption.

His rules in cases of suspended respiration from drowning are as follows:

1. Treat the patient instantly on the spot, in the open air, exposing the face and chest to the breeze, unless the weather is too cold.

2. Place the patient on the face, with one wrist under the forehead.

3. If there be breathing, wait and watch; if there be none, turn the patient instantly on his side and excite the nostrils with hartshorn, dilute pure ammonia or snuff, the fauces with a feather, and the face by dashing cold water upon it, having first rubbed it dry and warm.

4. If these means fail, replace the patient on his face, raising and supporting the chest well on some piece of clothing; then turn the body very gently *on the side and a little beyond*, and then briskly on the face, repeating these movements alternately, but efficiently and perseveringly *fifteen* times only in the minute, occasionally varying the side. Whenever the body is made to resume the prone position, *i. e.*, is returned upon the face, equable but efficient pressure should be made on the spine at the back of the chest, which pressure should cease immediately before the body is rotated upon the side. In the meantime rub the limbs *upwards* energetically, with firm, grasping pressure, using handkerchiefs or any convenient clothing.

These last directions constitute what is termed "Postural Respiration," which is the great improvement deemed so efficacious in *imitating*, and thus so all-efficient in *inducing* natural respiration.

His recommendations are supported by the following arguments: In all cases of suspended respiration, the first and great desideratum is air, which can only be supplied by the restoration of respiration. How can this be best effected? Not by supplying an undue proportion of air, nor by exciting the circulation before respiration has taken place. For it is a law of the animal economy, that the number and extent of the respirations and the rapidity of the circulation must constantly maintain a due ratio to each other. If this ratio be broken, one of two events must occur: On the one hand the circulation being unduly augmented, *i. e.*, in disproportion to the respiration, or the respiration being unduly suppressed, carbonic acid would not be eliminated in proportion to its formation, and the patient thus be destroyed, as in all cases of death by apnœa. For the lungs supply the system with oxygen, which by the arterial blood is conveyed to every part of the body, where by the processes of nutrition, it supports the combustion of the tissues. It is by this combustion that animal heat is evolved, and the oxygen converted

into carbonic acid. This blood-poison is conveyed from thence by the venous blood to the lungs, which are both the ventilator and the chimney of the general system. Now when this chimney is prevented from performing its office, the result is suffocation.

On the other hand, if respiration were *augmented* disproportionately to the circulation, the temperature would be lowered, and the patient might die of *refrigeration*. For respiration is a cooling process, expired air having a higher temperature than inspired air, caloric must be given off by the pulmonary blood. In an uninterrupted healthy process of respiration and circulation, the slight degree of heat lost by the absorption of oxygen, is probably counter-balanced by the simultaneous escape of carbonic acid, the one losing, the other assuming the form of gas; so that the resultant temperature may be unchanged. But if by any means of artificial respiration, oxygen is supplied without a corresponding loss of carbonic acid, the temperature will be constantly diminished, and death be produced thereby. This result has been actually effected upon animals by experiments with artificial respiration.

Hence it may be laid down as physiological laws, that "every means of augmenting the circulation, without simultaneous respiration, only augments the formation of the carbonic acid blood-poison, and destroys the patient;" and that "undue artificial respiration cools and destroys; the balance of temperature is lost."

Now what are the means by which air may not only be supplied, but supplied beneficially, proportionately to the circulation? By clearing the throat; by *exciting* respiration; by promoting circulation and warmth; and by *inducing inspiration*.

Before considering the measures to be adopted to accomplish these objects, it is well to divide apnœa into four stages. First, when the breathing is not quite extinct; second, when the breathing has ceased, but may be excited; third, when breathing has ceased, and cannot be excited, but may be imitated and thus induced; fourth, when the circulation has entirely ceased, in which case the dependent respiration can never be restored by any means.

In the first and second stages, it suffices to clear the throat, by placing the patient on the face with one wrist under the forehead, and to excite the trifacial and cutaneous nerves, the external excitors of respiration, by exposing the face and chest to the breeze; by dashing cold water upon them, by tickling the fauces with a feather, and by applying hartshorn, dilute pure ammonia, or snuff to the nostrils. In the third age it is necessary, the former measures having failed, to imitate breathing by "postural respiration;" to promote circulation and

warmth by rubbing the limbs upwards; and to induce inspiration by slapping the surface of the body briskly with the hand, by dashing cold water on the surface, or plunging the body alternately and rapidly from a cold into a hot bath, the temperatures of which should be for the former 50°–60° Fahr., for the latter about 100° Fahr.

As to the means recommended for clearing the throat, Dr. H., contends that in the supine or any position except on or towards the face, the throat is apt to be obstructed by the falling back of the tongue and epiglottis, or by the accumulation of fluids already in the mouth, or regurgitated from the stomach; and these fluids may be fatally inhaled into the windpipe, particularly when inspiration is mechanically effected, thus inducing a second and fatal suffocation. That these results may occur in cases where all muscular and nervous energy has ceased, or is in abeyance, may be judged from the fact, that when a dead body is placed in the supine position, the tongue falls backwards, or may be easily forced or drawn backwards by artificial methods of respiration, and the rima glottidis is closed.

In regard to postural respiration, the superiority of alternate pronation and rotation, with pressure on the spine, over supination with pressure on the thorax and ribs, as heretofore adopted, can be easily demonstrated in the dead-house. When the body is placed on the face, the thorax and abdomen are compressed by the weight of the body, and this force being increased by efficient pressure on the spine at the posterior part of the thorax, will induce *expiration*, and if the body be now gently turned on the side, through rather more than a quarter of a circle, the abdomen and thorax being relieved of the weight of the body, and the pressure on the spine desisted from before rotation is begun, effectual *inspiration* will take place. While these movements to induce respiration are in progress, circulation and warmth may be promoted, (which without them would prove injurious) by rubbing all the limbs and trunk upwards in the course of the veins, which is the best means not only of elevating the temperature of the body, but also of accelerating the venous circulation, by which the carbonic acid poison is conveyed to the lungs, where by the respiration now in progress, it may be eliminated from the system and the patient saved.

In exciting respiration the inhalation of dilute pure ammonia may be very serviceable, as besides its stimulating qualities, it has decided power in neutralizing carbonic acid, as proved by the following experiment: A mouse placed in five ounces of atmospheric air, died in forty minutes. Another placed in the same quantity of air, into which pure ammoniacal gas was diffused, survived ninety minutes. "The difference between

these two experiments is, that of the carbonic acid blood-poison retained unchanged and exhaled or neutralized."

Upon the rationale of the warm bath Dr. H. says, that as warmth is not only a stimulus, but also an elevator of temperature, which is so much lowered in the asphyxiated, to submerge a patient in a warm bath would seem the deduction of common sense. But it must be remembered, that if circulation and warmth (the two being inseparably connected) be increased disproportionately to respiration, carbonic acid is retained, and the patient thus destroyed. Further, if there be one fact better established in physiology than another, "it is that an animal bears the suspension of respiration, in proportion not to the warmth, but within physiological limits, (the lower limit being about 60° Fahr.) to the lowness of the temperature; thus in cases of suspended respiration, a *low* temperature conduces to the protraction of life, whilst a higher temperature destroys it."

By experiment we may learn that coolness is more favorable to life in the asphyxiated from submersion than warmth, by the fact that an animal deprived of respiration by drowning lives longer in cool than warm water. If a kitten be thrown into cold water, and then drowned in warm water, it does not become asphyxiated so soon as it would if drowned in the same warm water, the temperature of its body not having been lowered by a previous cold bath. Dogs thrown into the celebrated *Grotto del Cane* become asphyxiated, but to restore them, a warm bath is not resorted to, but they are plunged into the adjoining "*lago Aguano*" and taken out resuscitated. For further proof that animals bear the absence of respiration in proportion to their coolness, it is well known that Hybernant and Batrachian animals can scarcely be drowned at all.

Dr. H. objects then to the warm bath, because if it has any effect, it is to accelerate the circulation, thereby increasing the formation of carbonic acid, which is fatal when there is no respiration to eliminate it; because the uniform temperature of the warm bath excludes the excitation of the cutaneous respiratory nerves by the alternate application of heat and cold; because postural respiration is prevented, and friction of the limbs upwards, which is the most effectual means of promoting circulation and warmth, is interfered with; and because time is lost in preparing and carrying the patient to it, and the mind diverted from the really essential remedies. Therefore experiment and theory alike prove it is both positively and negatively injurious, and that it should never be resorted to, until respiration is fully reëstablished.

To all blowing or forcing apparatus for artificial respiration, he objects on the grounds, that they may injure the delicate tissues of the

lungs; that they may force any liquids accumulated in the fauces, into the trachea, and thus suffocate the patient; that even when efficient, they supply air disproportionately to the circulation; that they are not as effectual as postural respiration, and that their application involves loss of time.

The same measures are recommended in the asphyxia of new-born children, care being taken to remove the viscid mucus from the mouth and nostrils. "The new-born infant is a creature of high irritability and low stimulus, of the lowest respiration, that, so to speak, of the fish tribes, the placenta representing the bronchiæ, the foramen ovale and ductus arteriosus are still open, both events greatly calculated to protract life in cases of apnœa; therefore our efforts should be more persevering, and the necessary measures continued, or renewed from time to time, even for hours, for the embers of life may not be entirely extinct."

Dr. Weed whilst lauding Dr. Hall, writes, that he, disgusted with all the old methods of resuscitating the asphyxiated new-born infant, long since resorted to measures similar in every essential particular to Dr. Hall's; and Dr. Corket reports that like measures have been in use in the highlands of Scotland from time immemorial. There, however, whisky is used to rub the face, neck and chest with, instead of sprinkling them with cold water, which he contends is preferable, "since whisky produces a greater amount of cold, and by its evaporation keeps it up longer than water; it is more stimulating to the extremities of the nerves, and more powerful in producing reflex motor action, and so establishing a function so essential to life as respiration."

Dr. Hall recommends his method also, in those cases where death is threatened by chloroform, by narcotic poisons, and by strychnine; observing that in all these cases we have not the simple apnœa alone to contend with, but also the elimination of the poison from the system.

More than twenty new-born infants, a smaller number of the drowned, and several cases of threatened death by chloroform have been already reported, as having been saved by "Marshall Hall's Ready Method," and in many of these cases all the measures heretofore in use, had been previously tried without avail.

ART. VII.—*Yellow Jessamine.* (*Gelseminum Sempervirens.*)

"A PLANTER of Mississippi, while laboring under a severe attack of bilious fever, which had not yielded to the remedies used, sent a servant into

his garden to procure a root, and prepare an infusion of it for him to drink. The servant, by mistake, collected the root of the Yellow Jessamine, made an infusion of it, and gave it to his master to drink. Soon after swallowing some of it, the planter lost his muscular power, so as to be unable to move a limb or to raise his eyelids; while he could hear and feel, and exercise his usual faculties as well as in health. His friends became much alarmed at his great prostration; but after some hours he recovered his muscular powers, and was highly pleased to find himself free from fever. He soon learned from his servant what plant it was from which he obtained the roots; and trying its effects upon the people of his own plantation, and those of his neighbors, he ascertained that he had a valuable remedy for fevers. Thus was a new remedy introduced to the world by pure accident."

In fever it is extensively used by the Thompsonians, and is the active ingredient in several quack medicines, as the "Electrical Febrifuge," "Speed's Fever Tonic," "Mississippi River Tonic," etc.; by many physicians experienced in its use, it is considered little inferior to quinine.

While various virtues are ascribed to it by many, all are agreed upon its sedative and narcotic properties. As a sedative, it is deemed superior to either digitalis or veratrum viride, and although not so powerful as the latter, it is yet more safe and manageable, and oftentimes more applicable from the fact that it neither causes nausea, nor acts on the bowels. It acts chiefly upon the sensory ganglia, spinal cord, and voluntary muscles, leaving entirely unaffected the intellectual faculties. It reduces the circulation and frequency of the respirations, promotes perspiration and the secretions generally, and while it relaxes wonderfully all the muscles, it relieves by its action on the nerves of the general system all sense of pain. "Under its influence restlessness is soon succeeded by calm repose, and the excited, frequent pulse, tempers down to tranquillity. These favorable impressions must be secured however by a frequent repetition of the dose, as its effects are not very durable, wearing off in two or three hours." From a full dose, intoxication, languor, dizziness, double vision, and inability to raise the eyelids, result; from an overdose, complete muscular prostration and death.

Dr. J. A. Mayes to whom these extracts are due, says, "I esteem it a most valuable adjuvant to other treatment, in all cases where high arterial action exists, in which it is desirable to lessen the frequency of the pulse, and to calm excitement, and where, as in the case of injuries, it is desirable to lessen the irritability of the nervous system; also in that troublesome hysterical exaltation of the nervous sensibilities, so often met with in enervated females, its value cannot be too highly estimated.

In short, it is a specific for no particular disease, but an admirable adjuvant in the treatment of nearly all, bringing about in the system a state of repose favorable for obtaining the full action of other and more radical treatment."

The root contains a dangerous resinoid principle readily soluble in strong alcohol, but not in dilute liquor or water, while the sedative properties are fully so.

Dr. Mayes recommends the following formula: "Four ounces of the fresh root, chipped small, to one pint of dilute alcohol; macerate for fourteen days." The dose of this tincture for adults is from twenty to fifty drops, repeated as often as required.

Dr. J. Douglas regards it as almost a specific in gonorrhœa. He has found it a most uniform, speedy and permanent cure in all and numerous cases which he has treated. He gives a tablespoonful night and morning, of a tincture made by placing a handful of the root in a bottle of whisky; after a few doses its narcotizing effects are strongly marked, and the beneficial results immediate.

The whole of this plant, flowers and root, possess the same medicinal virtues.—*Charleston Med. Jour.* S. C.

ART. VIII.—*On Mercury in Typhoid Fever:* by DR. WARE.—A paper read before the Abbeville District Medical Society.

THERE is probably no question more interesting to the medical practitioner of our district, or more practically important, than that which relates to the propriety of using mercury in the treatment of typhoid fever. We are every year becoming more painfully familiar with the ravages of this mysterious, this obstinate form of disease, and yet the opinions entertained as to its pathology are almost as unsettled as ever, and the treatment of it as empirical as when it first visited our latitude. True, we have witnessed, time and again, all the symptoms that manifest themselves during the progress of the disease, in all the various forms that it assumes, and we can unhesitatingly trace these symptoms to the different tissues, of the disordered states of which they are significant. We are fully acquainted, too, with all the morbid appearances, all the appreciable lesions revealed by *post-mortem* dissections, and still we are forced to admit, that our positive knowledge stops short at secondary links in the chain of causes; that we are yet ignorant of the real nature of the primary impression or lesion, from which results the pathological conditions manifested by the phenomena developed during progress of the disease, and which causes these pathological conditions to resist the influence of remedies usually found efficient to overcome

diseased states occurring in other forms of fever, but affecting the same organs and tissues, and giving rise to the same, or apparently the same, train of symptoms. Often are we forced to watch a case, week after week, unable to check its progress, trying first one plan of treatment and then another, without seeing any decidedly beneficial effect from any; and in the end we are totally unprepared to say, if the case terminates fatally, whether death was the result of the disease or of the means used to subdue it; or, if the patient recover, whether or not any thing we did, contributed to his cure. Such is the uncertain state of our knowledge, such the humiliating admissions which honesty forces us to make; and it becomes us to examine ridgidly and candidly every plan of treatment proposed, and to submit every remedy to the test of a most scrutinizing investigation, before admitting its claims.

Typhoid fever is, according to the best evidences of its true pathology, essentially a disease of irritation, and this irritation, whatever part, tissue or organ, may be its primary seat, results in general irritability of the system, or in some local inflammation, or both; and all are agreed as to the grand, leading indication, viz.: to subdue irritation, and support the system under its wasting influence. It is our object to prove, that this, the most important indication, and the one to which all others are but secondary, can not be met by the use of mercury, and that such use is not only unphilosophical, but hazardous: unphilosophical, because it constitutes an attempt to remove a cause by relieving an effect, and hazardous, because it involves an expenditure of vital energy under which the patient may sink, and which can, under no circumstances, contribute to his cure.

Settled opinions, it has been well said, are difficult outposts to carry, though nature herself be battering at the walls; and the tenacity with which many cling to the mercurial treatment, fully exemplifies the truth of the assertion. Accustomed to see all evidences of disordered states of the digestive organs, as occurring in fevers of miasmatic origin, yield to the influence of mercury, it was not at all surprising to find physicians slow to acknowledge the utter inefficacy of this drug, when used in the treatment of a disease having so many symptoms in common with that one, in which it is wont to exhibit the most beautiful display of its powers. We may have, during the progress of a case of remittent miasmatic fever, a congestion or an inflammation of the liver, a torpor or an excessive action of this organ, and any or all of these conditions may be relieved by the judicious administration of calomel. In typhoid fever, the liver becomes congested and inactive, and mercury fails to remove the disorder. Remittent fever, it is admitted on all hands, has its proximate cause in a nervous centre, and with equal unanimity it is agreed that typhoid fever has its primary seat in *some* portion of the nervous system. Then, why these different results from the same course of treatment, when instituted in two diseases having their proximate causes in the same system of organs, and whose more remote consequences, as displayed in their effects upon the liver and its functions, are apparently the same? May we not, upon true inductive principles, answer, that the two diseases are, in their nature, essentially

different, that they are generated by circumstances and agencies totally dissimilar, and that they commence their attacks by making impressions having no *real* analogy? And may we not, with equal propriety, contend, that, in reference to the liver, in the one case, the disorder is the result of causes overpowering the *existing* energies of that organ; in the other, of such as diminish the native force of those energies? That, in the one case, functional derangement is the result of increased action; in the other, of diminished vitality. In remittent fever, the action of the liver is disordered or suspended, because the channels through which it acts are obstructed, its machinery clogged: in typhoid fever, this viscus exhibits evidences of imperfect or disordered action, as the result of a diminution of its motor power; and this diminution is caused, not by continued resistance to the *exercise* of that power, but by the failure of its source. Hence it is that mercurial purgation, in remittent fever, increases the strength of the patient, and contributes to his comfort, by relieving the surcharged vessels of the portal system, and thus allowing the liver the free exercise of its powers, which had been held in check, not obstructed; whilst the same agency, in typhoid fever, increases debility and aggravates existing symptoms, by worrying an organ rendered incapable of being aroused to healthful action, in consequence of its diminished supply of nervous influence.

Again, diarrhœa frequently occurs as a complication of remittent fever, and no symptom is more frequently present in typhoid. And yet, how different the diseased states upon which depend the symptom, as they occur in these two forms of fever, and how strikingly different the means required for the relief of each. The same organs are affected in both instances, but, if I may be allowed the expression, from different directions. In remittent fever, the diarrhœa occurs in consequence of engorgement of the liver, inducing a congestion in the vessels ramifying upon the mucous lining of the intestines, or from the presence of acrid secretions, or of indigestible substances, or from all these causes combined; and we have, accompanying the profuse alvine discharges, a furred tongue with red edges, (probably dry) and a tumefied condition of the abdomen, with great tenderness on pressure. The tumefaction of the abdomen is removed, and its tenderness relieved, by blistering its surface, and under the continued use of calomel and opiates, the diarrhœa is checked, and the discharges gradually assume a healthy appearance. Here, too, the cause of deranged action is distant from the source of power, and coming within the reach of calomel, the organs are restored to the proper exercise of their functions. But in typhoid fever, the diarrhœa is the result of a diseased condition of the mucous follicles of the intestines; which diseased condition is induced by the failure of healthful innervation, entirely independent of the portal engorgement, vitiated secretions, or indigestible matter; and though we have, as before, a tympanitic condition of the abdomen, yet there is very little tenderness upon pressure, a blister fails to relieve, and the administration of calomel is not followed by a change in the character of the discharges, approaching more and more nearly the healthy standard, because the seat of the difficulty is beyond the reach of this medicine, and located in a system of organs over which it exerts no *direct* controlling

influence. True, if opium be combined with calomel in such quantities as to prevent its acting upon the bowels *at all*, the first discharges that occur may be consistent, and they will probably, exhibit some trace of biliary secretion; but, if allowed to continue, they invariably become watery again, and the scanty admixture of bile gives to them a dirty, dingy, brick-dust color, strikingly different from that appearance so characteristic of stools induced by the specific action of mercury. Nor is the patient at all benefitted by this purgation, but on the contrary, he is invariably left in a more debilitated condition, and frequently with all his symptoms manifestly aggravated. Another consideration, too, renders this practice eminently unsafe; for the calomel, if used at all, must necessarily be given in small and repeated portions, and combined with an opiate: thus ptyalism may be induced, and if this occur, *cancrum oris* will be likely to supervene, in consequence of the putrescent condition of the fluids, always present in typhoid fever. If this be true, (and a painful experience convinces me that it is,) is not the use of mercury, as a means of relieving the disordered condition of the bowels generally incident to this disease, both unphilosophical and hazardous? And if the views that we have expressed as to the difference in the pathological conditions, upon which depend the symptoms that we have investigated, and which occur both in miasmatic and typhoid fevers, be correct, there is, certainly, no analogy between the two forms of disease, and any plan of treatment predicated upon the supposed existence of such analogy, is in violation of the plainest principles of medical philosophy.

But the impropriety of the use of mercurials is not only proved positively, by the fact, that the pathology of the disease under consideration is essentially different from that of the diseases in which mercurials manifest their happiest effects, but also, by implication, from the efficacy of remedies of a totally different nature, viz.: stimulants and anodynes. These allay irritation, check diarrhœa, subdue delirium, overcome watchfulness, promote sleep, equalize temperature, support the powers of life, prevent the disease from expending its force upon any one vital organ, and, in a vast majority of cases when judiciously administered, conduct it to a favorable termination. And if in the assemblage of symptoms, constituting typhoid fever, these desirable results can be accomplished by the use of mercury, its properties are much more varied than we have been accustomed to regard them, and after all the time and study that have been devoted to the investigation of its physiological effects and uses, we are still unprepared to assign it its proper place in the classification of the materia medica.—*Transactions South Carolina Medical Association.*

REVIEWS.

Rev. I.—*Traité de Géographie et de Statistique Médicales et des Maladies Endémiques, etc.* A Treatise on Medical Geography and Statistics, and on Endemic diseases, etc.: by Dr. J. Ch. Boudin, 2 vols., 8vo., Paris, 1857.

This voluminous and comprehensive production is the crowning effort of a prolific author, who has already given to the medical world an extraordinary number of monographs dedicated principally to specialities allied to the subjects of the above title. He has divided the treatise into four sections: I. Medical Meteorology and Geology. II. Statistics of population and mortality. III. Geographical distribution of diseases. IV. Comparative pathology of the human race.

Anticipating in the introduction several interesting topics more elaborately discussed in their proper chapters, the author commences his argument in commendation of the important subjects to be studied. He treats of the supposed adaptability of the human race to every variety of climate, gives several examples from familiar statistics indicative of the comparative predisposition of the negro to mental alienation in a progressive ratio with an increase of northern latitude in the different States of the American Union. He also invites attention to the narrow limits within which it is possible for the negro to propagate, declaring that his race would soon be extinct in Egypt and in Northern Africa, exactly as it is constantly melting away in the British West Indies, where, according to the author's tables and the authority of Tulloch, at the present rate of decrease, there will not be an individual remaining by the end of a century. He draws in strong contrast the miraculous adaptability of the Jew to all climates, for there are none under which he does not thrive and multiply.

We append his remarks introductory to comparative pathology: "The diseases of the human species are neither identical in time, nor in space. History tells us of a certain number very prevalent in ancient times, in our days almost unknown, while affections then entirely unnoticed, produce at the present time the most terrible ravages. It is to this law that Pliny, the naturalist, alluded eighteen centuries ago, when he said "that it appeared wonderful that while some diseases had entirely disappeared from among us, others should still remain."

In relation to space, "diseases" says he, "have their *habitats*, their *stations*, their geographical limits. In Europe cholera has a northern limit of 64° latitude, and a southern of 21°. In the old world malarious fevers do not prevail beyond the Hebrides and the north of Scotland, while in the southern hemisphere their northern limit is an isothermal line of 57° Fahrenheit. Yellow fever has never passed beyond the 48th degree of northern, nor the 27th degree of southern latitude.

The predisposition of different races to particular diseases is very remarkable. In reference to malarious diseases, if we make the negro unity, we thus tabulate the degrees of susceptibility: Sepoy, 4; Malay, 6; natives of Ceylon, 7; English, 32.

The facts adduced by Boudin to establish that sea voyages and a sailor's profession are valuable agents for the alleviation and prevention of phthisis pulmonalis; that typhus always commences in winter and terminates in the summer in strong contrast with the yellow fever; that phthisis is more fatal under certain circumstances in tropical than in northern latitudes are all worthy of examination. We relinquish them unwillingly for the present, with all the subjects of geology, physical geography, climatology, thunder and lightning statistics contained in the first volume, for several specialities introduced in the second.

It is impossible to read in this work the complete history of the military occupation and attempted colonization of Algeria, without perceiving how unfavorably, and, indeed, hopelessly they have been regarded by the distinguished generals who have reported on the mortality in the army, and by the eminent physicians who have studied them in every aspect. The annual decay of the army by disease alone since 1837 has fluctuated between 38.40 and 140.08 in a thousand of picked men, not probably enumerating those who returned to die in the hospitals at home. Among the colonists proper, the average annual mortality for a series of years has exceeded sixty in a thousand, which as is well remarked by the author, might be comparatively estimated even higher if we recollect that there are no aged persons, and that many who are in bad health return to France to die among their friends. Compared with the number of births, that of the deaths is frightfully preponderant among the French population, while among their offspring with the native women the disproportion is even greater. This does not complete the gloomy picture. The colonists who escape death are so shattered, so prostrated in physical and mental energy, that they are incapable of advancing any important part of the objects for which this immigration has been so liberally encouraged. The cultivation of the soil cannot be reasonably expected of such subjects, and if, as Boudin says, a

greater proportion had been thus employed the mortality and demoralization would have been largely increased.

Among the Moors or the Mussulman population, the statistics establish a mortality greater even than that of the Frenchman. In seven years they record 23,000 deaths to 9,000 births.

The prospect of negro colonization remains yet to be stated as the most unpromising of all. "The children of negro parents," says Vital, "die more rapidly than those of the European. Of one hundred born annually, it is barely possible that two can attain the age of adolescence."

Among the remedies suggested for the unsuccessful issue of Algerian colonization the author discusses the proposition frequently urged, to cross the races by amalgamation with the native women. This scientific recommendation, which has been most faithfully observed in every French colony without even the encouragement of the government, is not sustained by the mortality reports. It does appear that the colonization of Algeria by France, is not more promising than her efforts for a similar object in other parts of the world.

While we unhesitatingly avow entire confidence in the value and fidelity of the author's statements relative to his own country and to its colonies, truth compels us to declare that his book is not reliable as a work of reference on the domestic institutions, mortality statistics, and comparative pathology of others. The whole article on the peculiarities of the climate and of the people of the United States, is borrowed from the writings of a traveling French professor, M. Desor. This peripatetic savant has given a graphic account of the anthropological American status, in which, starting on the old position of Buffon that the whole animal creation degenerated in America, he finds that the population are not only entirely deficient in embonpoint, but equally so in muscular and in glandular development, which last abnormity he philanthropically italicises, "*merits the serious attention of the physiologist, as directly compromising the future of the American race.*"

It is a matter of just surprise that while by the intimate personal and business relations sustained between the citizens of France and those of Louisiana, and by the official statistics decennially published, the author might readily procure proper information on the subject of negro slavery in America, he should reproduce the contemptible article contained in the Dictionary of Political Economy, issued at Paris in 1852. I condense the account with little alteration in the language:

"The slave States are divided into the breeding and the consuming. In the former, every attention is paid to increase their number and to

improve their quality, so that a premium is paid for the production of mulattoes, who are the most prized. On the part of the breeders, fecundity is regarded as a virtue, sterility as a crime. They flog barren negresses and the mothers of children that die. For the benefit of a market, these Virginia and Carolina breeders are the strongest advocates for annexation and the hottest opponents of importation from Africa. Trading in slaves is not less profitable than breeding, and the most eminent men in the United States, magistrates and clergymen have no scruple in thus investing their capital. President Jackson purchased cargoes of slaves in the north to resell them in the south. Infants are generally separated from their mothers because they have no value in the south; when gangs of slaves are purchased, the State prisons always serve as their depots. The average life of an imported slave in the south does not appear to exceed five years, and from this cause, the annual loss on a plantation is $2\frac{1}{2}$ per cent. The excessive labor is an obstacle to reproduction, and slavery would rapidly disappear from the consuming States if it was not incessantly renewed from the breeding States. 'Every habitation,' says M. Molinari, 'has its own code of tortures. In one, the disobedient negro wears a collar like a dog, in another his cheeks are branded with a red-hot iron, and in others they break the knee-pans with tourniquets. The most common punishment for runaways is extracting the front teeth,'" etc.

In order to correct the author's statistics for the next edition of this work, we extract the following from the last census of the United States:

"1. The present number of negroes in the United States, to that of those originally imported is as 8 or 10 to 1.

"2. The proportion of the same in the British West Indies is as 2 to 5.

"3. The average annual increase of slaves (in what he calls the consuming States) is 5.43 per cent.

"4. The average loss by death 1.58 per cent."

Although published in a language not familiar to the majority of our readers, this work is apt to be held up hereafter as one of authority. Except in the limited field already acknowledged, we do not hesitate to declare that as a work of reference it is in many particulars unreliable. The statistics of the comparative pathology of different climates, taken from English, French and American army reports, are confessedly important in a military and hygienic point of view. The extraordinary proclivity to phthisis pulmonalis exhibited by garrisons in southern latitudes, when found contrary to the ordinary standard of the same morbid

condition among the resident population, is demonstrative, in my opinion, not of a disposition to an increased development of phthisis in the South, but of some great and remarkable error in the quartering, clothing, regimen and general management of soldiers. Pathologically, scurvy and tuberculosis are generally held to be antagonistic—one, long the terror of seamen, has almost disappeared by proper attention to hygienic rules; the other, equally fatal in another great arm of national defense, will doubtless prove amenable to judicious sanitary regulations.

It appears from a careful examination of the mortality statistics lately published, that whereas the total proportion of deaths by phthisis pulmonalis in the English army amounts to a fraction of over five in a thousand men, that in the navy it is represented by less than two in the same number. It is an interesting and important fact that the loss by phthisis on ships of the line and frigates is twice as great as that on sloops of war and steamers. In a letter to Lord Panmure, on the construction of barracks and on the proper management of soldiers, signed by seventeen eminent military surgeons and professors, and published in the Journal of Public Health, for June, 1855, we find that while the mortality among the troops quartered in Great Britain is annually 15 in 1000, that the ratio among the police of London, equally exposed to night duty, is $7\frac{1}{2}$, or exactly one-half of the former. We insist that the whole of the military statistics published in relation to phthisis should be more properly held as an indication for reforms in the service than as evidences of great value for establishing the climatic habits of the disease.

JAMES JONES.

REV. II.—*Statistical Report on the Sickness and Mortality of the Army of the United States;* compiled from the Records of the Surgeon-General's Office; embracing a period of sixteen years, from January, 1839, to January, 1855: Prepared under the direction of Brevet Brigadier General Thomas Lawson, Surgeon-General United States Army, by Richard H. Coolidge, M. D., Assistant-Surgeon United States Army. Senate, U. S.: Ex. doc., No. 96. Pp. 703, 4to. Washington. 1856.

IN 1852, the surgeon-general addressed a circular to the medical officers of the army, requesting them to report the geographical position, physical aspect, geology, flora, fauna, climate, vital statistics of the popula-

tion, the diseases, etc., at the different army posts, for a period of sixteen years, that is, from Jan., 1839, to Jan., 1855, including statistical details in tabular form of the sickness and mortality of the troops taken from official records. A large quarto, compiled by assistant-surgeon Richard H. Coolidge, M. D., U. S. A., is the result.

The army meteorological register, and the medical statistics of the army, are due chiefly, it is supposed, to the energetic administrative action of Dr. Lawson.

How imperfect soever, in many respects, this latter work may be, owing to its limited data, taken from the dynamical condition of a small army, now on the shores of the Atlantic, then on the Pacific, now in Maine, then in Florida, in New Mexico, on the great lakes, or in the western wilderness, still the facts developed are highly important in illustrating the vital and sanitary history of a particular class, if not conclusive in regard to the climatic influences upon the civil or savage residents of the vast regions and different climates where the military posts are established.

The information derivable from these army reports, is not only very valuable but is difficult to obtain from other reliable sources, not being wholly restricted to vital statistics, but comprehends much concerning the physical features, geology, flora, fauna, climate, and population of different regions, including the Indian tribes.

The surgeon-general, Brevet Brig. Gen. Lawson, and Dr. Coolidge deserve the thanks of their medical compatriots for their laudable efforts to make the national government auxiliary and subservient to the advancement of medical science, not only in the army, but in civil life. Although medical facts and statistics derived from the army represent only a particular and very dynamical class, yet, on the other hand, the army medical officer has some desirable facilities for enforcing such measures as may be necessary for carrying out remedial treatment, and for obtaining exact data and significant results. In civil life, the medical treatment is not only without authority, but is often a compromise between the physician and the patient, or the friends of the latter, not to mention nurses, black, white, and mixed.

The regular army, as now constituted according to law, amounts to 12,698, of which number 1,040 are officers. Of 5,000 recruits enlisted in the years 1850 and 1851, only 1,484 were native Americans! In 1852, the number examined amounted to 16,064; the rejected to 13,338; and the accepted to 2,726. There were rejected for not being able to speak the English language 2,434!—(pp. 626–7.) Foreigners constitute an overwhelming majority of the army, the native force being but 1 in 3.3+.

The official statistics of the war with Mexico, cannot fail to cause an agreeable surprise among those who have formed their opinions from the newspaper accounts of the losses of the American army, in the numerous pitched battles during the glorious campaigns of 1846 and 1847.

The aggregate force of the old army was 15,736, the killed in battle and dying of wounds during the war, twenty-six months, amounted to 792. This loss from battle alone was relatively greater than that of the volunteer force. The total loss from sickness and all other causes amounted to 4,917, while among the volunteers in ten months, in an aggregate force of 73,260, the loss was 20,385, or 27.82 per cent., or 2.78 per cent., monthly, against a monthly loss in the old army of 1.2 per cent. per month, for twenty-six months—a remarkable disparity truly.

The returns of the killed on the field of battle in the regular army in some of the principal battles, as also the aggregates in skirmishes, will be now subjoined: Palo Alto (May 8, 1846,) 5; Resaca de la Palma (May 9, 1846,) 33; Monterey (Sept. 21, 1846,) 55; aggregate including other affairs, 125.

Regulars. 1847. February 22 and 23. Killed at Beuna Vista, 6.

March 9 to 28. Vera Cruz, 7.

April 18 and 19. Cerro Gordo, 40.

August 19 and 20. Contreras and Churubusco, 106.

September 8. El Molino del Rey, 124.

September 12 to 14. Chapultepec, 104.

Total killed in 1847 in the regular forces, 556.

1847. Volunteers. Killed on the field of battle among the volunteer forces: at Beuna Vista, 259; Cerro Gordo, 24; Contreras and Churubusco, 27; Chapultepec, 34. Aggregate for the year, 399.

Aggregate for 1846, 75; grand total, 474, for the campaigns of both years.

The year 1847 gives for the principal battles, and for all the skirmishes, both by regulars and volunteers, the following results: killed in the regular army 556; among the volunteers 399; amounting for both to 955.

Total killed in battle during the entire war in the regular and volunteer forces, 1044. Total killed and died of wounds, 1549.

At the moment of making these enumerations, a document, dated Sept. 25, 1857, published by Maj. Gen. Pillow, came to hand, in which he asserts that the capture of the city of Mexico alone, cost the blood of 1672 men out of 11,500 soldiers, all told, of the American army; he, himself, a commanding general, having been wounded in, and a witness of these battles.

Memory, however, is not to be trusted in important matters of this kind, when contradicted by official returns of battles made at the time and place of their occurrence.

It was the war with diseases, not with Mexicans, which decimated the American army—a war not with epidemics, but with maladies, which, for the most part, were preventable.

In vain are the arms of war put into the soldier's hands for a long campaign, if the physical comforts be withheld. His chance of dying of an inglorious diarrhœa, dysentery, pleurisy, pneumonia, camp fever, or other disease resulting from privation and exposure, is vastly greater than his chance of a glorious death upon the field of battle. "Somehow or other," said Frederick the Great, "Providence seems to do the most for the best disciplined troops." "I have always noticed," said Napoleon, "that Providence favors the heaviest battalions." Other commanders have advised their soldiers to trust in Providence, but at the same time to keep their powder dry. It might be equally wise to assume that battalions properly clothed, lodged, fed, and provided with the physical comforts and means of transportation, and good physicians, will accomplish most for their country and with the least loss to themselves. The government or their authorized agents are answerable for the majority of the deaths in the army. To prove this, let the secretary of war, the commander-in-chief, and the surgeon-general of the army, or their representatives, study a paper in the July number for 1848, of the N. O. Med. and Surg. Jour., by Dr. Love, surgeon of the 2d regt. Mississippi Rifles. These troops embarking at Vicksburg, Jan. 2d to 6th, reached the muddy battle-field of New Orleans, where, before the end of the month 80 men died in the suburbs of New Orleans, by the war of the elements, cold, rain, the lack of clothing and other physical comforts, all of which were readily attainable in the city, at a moderate expense. Twenty-eight men of this regiment, after having embarked on January 30th, were committed to the deep before the troops landed at the Brasos, making a loss at the outset of 108 men. "The Pennsylvania troops," says Dr. Love, "were encamped on the battle ground at the same time, and appeared to enjoy good health. They were, however, well clothed in wollen goods, etc. We had no reason to believe that there was anything peculiar or poisonous in the atmosphere, etc. * * * * The captain of Company G provided his men with additional blankets, * * * * while the captain of Company I exposed his men; the mortality of one is 9—of the other 24."

The survivors after having reached their destination, lost 59 of their number from disease, making a loss of 167 by disease, to which must be

added 134 discharges—a total loss of 301 during six months in one regiment. Leaving, after deducting 50 (transferred or deserted,) only 534 men out of 10 companies!

If the greatest personal compliment consists in imitation, it cannot be the smallest compliment to a book to make the extensive quotations which enrich several articles in the present number of this Journal, to which the reader is referred for important details that need not be repeated in this short notice.

There is one fault or rather omission chargeable against Dr. Coolidge, the able compiler, namely, the work is without an index.

There is a paper, which coming as it does from a medical officer, and being of an exceptionable character, should not be ignored by an independent reviewer, seeing that it has a kind of quasi sanction of the government, as will be seen in the sequel.

Surgeon S. G. I. De Camp's report on the topography and diseases of Fort Columbus, lat. 40° 42′, Governor's Island, harbor of New York, contains the following extraordinary confession of medical faith, namely, "I cannot let the present occasion pass without bearing testimony to the value of the sulphate of quinine, and arsenic, and other remedies of that class, in the treatment of disease, extending to a range far beyond what was once supposed. The intermittent character of disease would seem to be more extensive than some imagine. *I am indebted to Doctor Dickson's Chrono-Thermal System of Medicine for the views which I now entertain upon this subject*, and can speak with confidence of the value of these remedies in rheumatism, asthma, continued fever, and some spasmodic affections in children, and in many cases of an anomalous character, the pathology of which is little understood."—15.

The Dicksonian system from which this report imbibes its knowledge, cannot be considered as having been even virtually endorsed by its acceptance and publication, as neither the surgeon-general who revised it, nor the U. S. Senate who ordered its publication with other documents, deserves criticism in this behalf. Indeed the surgeon-general in his circular to the medical officers says, "as it is proposed to publish each individual essay under the name of the gentleman who draws it up, all facts, statements and conclusions will rest upon the responsibility of the officer making the report."

As this report is an official one it may be proper to glance at the precious system which it endorses. The status of this system is indicated by its title, namely, "Chrono-Thermal System of Medicine; with the Fallacies of the Faculty; People's edition." This apparently semi-official recognition of an utopian system, which is destitute of originality,

being only remarkable for its calumnies against the regular faculty and its denunciation of many valuable medicinal agents, nevertheless gulps down arsenic, copperas, blue vitriol and white, tartar emetic, creosote, lunar caustic, and greatest of all, Prussic acid.

In "the People's (3d) edition," Doctor Dickson declares that he has given lunar caustic to 1,000 persons without harm, and with great advantage. The main pathological doctrine of this utopian system is that of universal intermittency; in which category he places jealousy, leucorrhœa, cancer, tumors, miscarriages, teething, etc. "As sure," says he, "as the sun ever shone on this earth parturition in every instance *is an intermittent fever.*" The greatest obstacle to the improvement of medicine is, according to him, the preference given to male over female practitioners. He says, "life is electricity; medicine repulsion or attraction. Peruvian bark is motive power. There is but one disease, fever. Purgatives act through the brain. All medicines cure by their electrical influence solely, being useful only so far as they improve the temperature." He ridicules the stethoscope, derides pathological anatomy, etc.; and equally, with his predecessor, Samuel Thompson, whom he wholly ignores, denounces bloodletting altogether. There is but one true physician, himself! He says, in capitals, "I STAND ALONE!" In New Orleans a few years ago, there was a lunatic who perpetually and loudly proclaimed himself "THE GREAT I AM." His somewhat sublime ravings excited pity, but the pretentious charlatan deserves contempt only.

Everything that is true in chrono-thermalism has been said a thousand times by the regular faculty, and it is a matter to be regretted that a highly respected medical officer of the army should travel out of legitimate medicine for his system of practice, and sanction, in his official report, incoherent dogmas injurious to the profession and the well-being of society.

It is hoped that surgeon-general Lawson and assistant-surgeon Coolidge, have been, or will be invested with the power to consign to the flames, such documents as are injurious to the well-being of society, injurious to science, injurious to the medical profession.

The Reports on the administration of Quinine in large doses, which occupy 53 quarto pages, present neither originality nor numerical precision. Assistant (now surgeon) Charles McCormick, for some years a resident in New Orleans, had as early as 1841, reported in favor of using the sulphate of quinine in intermittent and remittent fevers, even during their paroxysms, in doses of fifteen grains each, sometimes increasing the dose to twenty-five or thirty grains every hour. This able physician has more, perhaps, than any other, contributed to introduce large doses of quinine into the army practice.

Besides the two reports by Dr. McCormick, and two by Dr. Byrne, on quinine, reports have been published in this work upon the same subject, from the pens of surgeons Harney, Satterlee, Wood, Randall, Wright, Bailey, DeLeon, Madison, and Simpson. The reports of these gentlemen must be regarded as selected from a great number : For it appears that reports, in reply to the circular of the surgeon-general concerning quinine in large doses, amouted to fifty-seven, from as many medical officers. But it would be almost as difficult to shorten a straight line as to deduce a numericial rule possessing precision and universality, from data so limited and imperfect, perhaps selected, not to mention the possible omission of desperate cases. The omission of fatal results is a crying evil in the statistics of surgery and clinical medicine.

At present, the limits of this Journal will not permit any investigation into the natural history, meteorology, climates, medical topographies, and predominant diseases of the different regions which these reports illustrate.

BENNET DOWLER.

MISCELLANEA.

I.—*Professor Agassiz.*

Messrs Editors : We beg leave to lay before your readers the following extract of a letter, from one conversant with the facts, touching the forthcoming work of this distinguished gentleman, on the Natural History of our Country, and feel assured that the explanation given will be perfectly satisfactory to those subscribers at the South who have so generously stepped forward to aid his great enterprize; they will always be ready to indulge and to honor the man whose labors are conferring so much honor on our country.

J. C. NOTT, M. D.

"His book, though it does not yet appear, is going on rapidly. The letter press of two volumes is already complete and ready for publication—has been indeed for two months past ; but the great difficulty of finding printers capable of executing the plates retards the whole. For a long time the publishers could find but one man who was up to such delicate work—now, by sending abroad, they have, I believe, three, and the work is going on better.

"It has been proposed to send a part to Paris to be executed, but Agassiz was unwilling to change the *national character* of the work—*un-Americanize* it, by allowing a single plate to be printed out of the United States. In this he hopes his subscribers will agree with him.

"He is now engaged, and has been all summer, on the third volume—on the *Medusæ*—and hopes that though the first two volumes have been so unavoidably delayed, the third will follow them quickly, as the proper workmen are now engaged, and the difficulties as to the printing of the plates fully understood. His own labors have really been unceasing from the beginning. More than 650 pages of the text having passed through the press during the last year.

Cambridge, Mass., Sept. 28th, 1857."

II.—*Reägent to discover the very smallest quantity of the Bichloride of Mercury in Calomel, adulterated therewith.* Translated from the *Bulletin Général de Thérapeutique*: By DR. CHAILLÉ.

"THE purity of calomel is so important a point, that we deem it useful to designate to practitioners, a very simple process by which they may assure themselves whether this medicine is exempt or not from corrosive sublimate. The formula of this reägent is as follows: ℞. Potassii iodidi, gr. ij.; aquæ destillatæ, ℥iij. M.

"With a few drops of this liquid make a paste on a small piece of glass with about eight grains of the calomel, to be tested. If the calomel is pure, it will assume a green color; if it contains but a millionth part of the bichloride, red spots will be apparent."

The above test may be relied on. The green color is rather a light yellowish green, and the red spots are so minute as to escape careless observation, when the quantity of bichloride is small. The difference in color between the two pastes is well marked.

III.—*Decomposition of Compounds.*

IN the late meeting of the British Association, a paper was read from Dr. Woods, of Parsonstown, "On the time required by Compounds for Decomposition." The paper first proved experimentally that the intensity of a galvanic battery depended on the rapidity with which the electric current is produced. It then showed, *cæteris paribus*, this rapidity depends on the decomposition which necessarily takes place at one end of the battery, and proved, from the experiments made to demonstrate the above propositions, that all compounds require a certain specific amount of time wherein to decompose. It has been long known that the "forces," such as heat, electricity, etc., brought into play by the molecular changes of matter are definite and imperishable, but the

invariable and definite nature of the "time" in which these changes and these forces are produced was not before observed.

IV.—*Vitality of Seeds.*

At the meeting of the British Association for the Advancement of Science, (Dublin, Sept., 1857,) Dr. Daubeny read a paper on the Vitality of Seeds. Experiments had been made on mummy seed, but it was found they had not vitality, and other experiments disproved the common belief regarding the indefinite vitality of certain seeds. The greatest number of seeds lose their vitality in eight years, and forty-three years was the longest period which they were found to retain it.

These observations were confirmed by Dr. Steele, and Mr. Moore, curator of the gardens of the Royal Dublin Society.

V.—*Professional Incomes.*

Mr. Leslie read a paper "On Professional Incomes." He went into a comparison of the profits of the Bar, the Established Church, the Medical Profession, the Army, and the Civil Service, with those shown by the income tax returns to be made in commercial business, and he proved that the professions are, both relatively and absolutely, underpaid, as far as money only is concerned, but "honor," as Adam Smith says, "forms part of the reward of all honorable professions." Mr. Leslie then showed how a new class of honorable and scientific professions had lately sprung up on the continent, and that the same thing was both necessary and possible in this country. Of both these points he gave proofs and observed that we should endeavor to repair our shortcomings by giving, in case of those who would soon succeed us, honor where honor is due, even if the laws of custom and heraldry did not sanction our applause. "Its echoes," said Mr. Leslie, "will be heard when these walls have grown old around youthful genius, instructed for wider and more beneficient aims than ever their enlightened founder can foresee."—(*Brit. Assoc.*)

[Prof. Leslie read another paper on *Competition at the Bar*, an analysis of which may interest some of the readers of the N. O. Med. and Surg. Jour., who may be deliberating whether to choose that profession for their sons. It is believed that the number of lawyers, especially of the non-practising class, is in proporrion to the population and its wants much greater in the United States than in the British empire; and, also, that the number of this profession, especially the number not finding employment, in the United States, is proportionally much higher than that of the medical profession. In New Orleans the number of lawyers greatly exceed that of the medical faculty; a few of the former doubtlessly receive larger emoluments than any of the latter, while,

upon the whole, the number of non-practising lawyers is proportionally much greater than that of the non-employed portion of the medical profession. Hence, if physic pays badly, the law pays worse, with rare exceptions; the probabilities in favor of getting patients, therefore, exceed the chances of getting clients. In neither can an excessive supply insure a corresponding demand.

At the bar, however, a profound knowledge of the principles and practice of the law meets with a ready appreciation by competitors, by courts, and even by clients, and may sometimes lead to judicial promotion, while the graces of oratory and the fascinations of eloquence, (vouchsafed to but few even in the forum,) are at once felt and applauded by the multitude. Oratory, with or without legal science, paves the way to political preferment. It is far different with the physicians, whose final judges (the patient, the nurse, and the family) are ignorant of the laws of pathology and therapeutics, although they might be fully able to appreciate an eloquent discourse at the bar or in a popular assembly. To sway the minds of thousands by words, be the cause a good or bad one, will gratify a thirst for popular fame, which a well directed dose of castor oil or quinine, even though it save a life, will never satiate. It is, says Hippocrates, assistance not speculation or words which the patient needs. B. D.]

Professor Leslie read a paper on "Competition at the Bar." He stated that it was of great economical importance that our institutions should be such as both to secure an ample supply of competent men to discharge the various duties of the profession, and to effect this without extravagant cost to the country, either by fees and salaries, or by demands upon the intellectual capital of the community. This last extravagance would occur if the bar were really a profession in which twenty fail for one who succeeds, as described by Adam Smith. Mr. Senior, commenting on this statement said that he believed the chances to be two to one in favor of a diligent law student, not two to one against him. He (Mr. Leslie) thought that even Mr. Senior's estimate of the chances might show a great loss. If a bar of 4,000 as in England, one-third, or more than 1,300 members, in excess, that would be a sacrifice, considering the ability and costly education of the majority of barristers. Mr. Leslie then compared the increase of the English bar with the remarkable decrease of the Irish bar. The rate of annual calls in the latter had risen from an average of twenty-three in the early part of this century, to sixteen in 1840, since which it had fallen to twelve in 1856. The statistics of the subscribers to the law library in Ireland presented similar characteristics. It was necessary, therefore, to show whether the supply of Irish barristers was in just proposition to the demand, since they were evidently naturally proportioning themselves. But as to the English bar, it was otherwise. An analysis of the whole bar of 4,000, separating those holding office, those abroad,

those nominally "practising," and those who had (so far as the law reports enabled them to judge) actually obtainad practice, altogether brought out conclusively the fact that at least half the members of the English bar were not really working members of that profession. Mr. Leslie then analysed the various causes of this state of things, viz.: the increase of the prizes in the lottery of the law and the numbers ambitious of belonging to liberal professions, the diminution of military employment for certain classes after the peace of 1815, the state of university education, and the general superiority of the estimation in which the bar is held. He observed, in conclusion, with the modern discoveries in physical science promised to open up a new class of professions for the employment of the classes who now over-crowded the few monopolizing the title of liberal and learned.

VI.—*Mortality Statistics of the City of New Orleans;* compiled quarterly, from Jan. to Sept., 1857, from the weekly reports kindly furnished by Dr. H. D. Baldwin, Secretary of the Board of Health.

THE population of the city is generally estimated at over 150,000.

TIME.	DEATHS.	CHILDREN under 20 yrs. old.	U. STATES.	FOREIGN.
January to March	1,240	595	538	702
April to June	1,532	943	960	572
July to September	1,328	762	887	441
Total for nine months	4,100	2,300	2,385	1,715

Principal Diseases causing this mortality:

	JAN.—MAR.	APRIL—JUNE	JULY—SEPT
Still Born	80	85	106
Tris. Nascent	42	25	67
Teething	19	55	49
Cholera Infantum	8	53	17
Infantile Convulsions	77	110	100
Croup	25	21	14
Scarlet Fever	27	29	9
Measles	40	57	4
Variola	21	34	26
Diarrhœa and Dysentery	84	125	116
Enteritis	21	33	60
Inflammation of Lungs	65	55	19
Consumption	157	169	150
Apoplexy	28	28	21
Congestion of Brain	17	25	32
Fever, Typhoid	27	29	30
" Miasmatic	11	18	39

Of yellow fever there was 1 case reported in June, 1 in July, 1 in August, 8 in the last week of September, 13 in the first week of October, 12 in the second week, and 36 in the third week; in all up to the present time, October 18th, 1857, 72 cases. S. C.

MONTHLY SUMMARY—METEOROLOGICAL REGISTER.

NEW ORLEANS, LA., Lat. 29° 57′ 30″ North; Long. 90° West; Altitude of Barom. above the level of the sea 35 feet.

From the Medical Purveying Office, United States Army, New Orleans.

1857.	Barometer.			Therm. Attached.			Thermometer.			Hygrometer.			Prevailing Winds.	Rain.	
Months.	Max. of Obs.	Min'm of Obs.	Mean.	Max.	Min'm	Mean.	Max.	Min'm	Mean	Max.	Min'm	Mean		No. of Days.	Quant'y
January...	7, A.M. 8th. 30.478	2 P.M. 30th. 29.934	30.299—	9 A.M. 2, 27 & 28 68	2 P.M. 19th 44	57.55—	2 & 9 2nd 68	7 A.M. 19th 28	50.56	2 & 9 P.M. 2d 67	7 A.M. 19th 26	48.36	N.E. E. & N.	7	2.68
Febuary ..	7, A.M. 10th. 30.696	2 P.M. 7th. 29.950	30.255—	9 P.M. 25 & 26 76	2 P.M. 9th & 10th 55	67.72+	9 P.M. 20th 79	7 A.M. 9th 42	64.98	2 & 9 P.M. 26th 73	7 A.M. 9th 38	62.29	S.E.; N. & E.	7	1.97
March	7 A.M. 7th. 30.374	7 A.M. 11th. 29.930	30.195+	9 a.m. 2 p several 75	several 55	66.08	2 P.M. 29th 78	7 A.M. 8th 43	62.35	2 P.M. 29th 74	7 A.M. 8th 41	58.90	N.E.; & S.E.	7	2.86
April.....	7 A.M. 6th, etc. 30.260	9 P.M. 30th. 29.876	30.104	9 P.M. 18th 77	7 A.M. 13th 59	68.44	2 P.M. 18th 79	7 A.M. 13th 47	64.96	2 P.M. 18th 74	7 A.M. 6th 44	61.36	N.; N.W. & S.E.	8	1.73
May......	7 A.M. 21st. 30.272	7 & 2. 3rd. 29.794	30.076+	2 P.M. 15th 84	7 P.M. 4th etc. 67	74.70+	2 P.M. 13, 14, 15, 85	7 A.M. 19th 63	74.16	2 P.M. 15th 79	7 A.M. 20th 58	69.57	S.E.; E. & N.W.	8	7.33
June......	7 A.M. 9th. 30.220	7 A.M. 24th. 29.850	30.093+	9 P.M. 11th 86	9 P.M. 23rd 74	80.79+	2 P.M. 11th 88	9 P.M. 23d 73	80.09	9 P.M. 12th 81	7 A.M. 19th 66	74.95	N.W.; S.E. & S.W.	6	2.90
July......	7 A.M. 7th. 30.252	9 P.M. 16th 29.972	30.135	9 P.M. 15th 88	7 P.M. 5th 77	85.76—	2 P.M. 22d 88	7 A.M. 4th & 5th 74	81.80	2 P.M. 16th 81	7 A.M. 4th 68	76.99	S.E.; E. & S.W.	16	5.86
August ...	7 A.M. 14th. 30.270	7 A.M. 11th 30.000	30.156+	2 P.M. 19th 86	2 P.M. 11th 79	82.27—	2 P.M. 19th, 27th 87	7 A.M. 11, 30, 31. 78	81.80	2 P.M. 19th 82	7 A.M. 30th 71	77.97	S.E.; S.W. & E.	19	4.64
September.	7 A.M. 30th. 30.350	9 P.M. 21st. 30.076	30.184—	2 P.M. 17 & 18 86	7 A.M. 24th, 25th 72	80.17+	2 P.M. 17th 87	7 A.M. 23d 70	80.15	2 & 9 P.M. 17th, 18th 81	7 A.M. 30th 60	75.24	N.E.; N. & E.	5	2.55
October 15	7 A.M. 1st. 30.244	2 P.M. 8th. 29.856		2 P.M. 4th. 80	7 A.M. 8th 70		2 P.M. 12th 79	7 A.M. 8th 66		2 P.M. 4th 76	7 A.M. 8th 63		N.E. E.; & N.	4	3.50

Editor's Office.—Notices.

NOVEMBER, 1857.

BOOKS AND PAMPHLETS RECEIVED.

Elements of Pathological Anatomy: By Samuel D. Gross, M.D.; Professor of Surgery in the Jefferson Medical College of Philadelphia; and formerly Professor of Pathological Anatomy in the medical department of the Cincinnati College. Third edition, modified and thoroughly revised; illustrated by 342 engravings on wood. Pp. 771, 8vo. Philadelphia: Blanchard and Lea. 1857. From **Mr. J. C. Morgan, bookseller, Exchange Place, N. O.**

On Diseases of the Skin: By Erasmus Wilson, F. R. S. Fourth American edition, from the fourth and enlarged London edition. Pp. 649, 8vo. Philadelphia: Blanchard and Lea. 1857. From Mr. J. C. Morgan, bookseller, Exchange **Place, N. O.**

The Practice of Surgery: By James Miller, F. R. S. E.; F. R. C. S. E.; Surgeon in Ordinary to the Queen, for Scotland; Surgeon in Ordinary to His Royal Highness Prince Albert, for Scotland; Professor of Surgery in the University of Edinburgh; Consulting Surgeon to the Royal Infirmary, etc., etc. Revised by the American Editor: fourth American, from the last Edinburgh edition; illustrated by 364 engravings. Pp. 682, large 8vo. Philadelphia: Blanchard & Lea. 1857. From Mr. J. B. Steel, bookseller, 60 Camp street, N. O.

Climatology of the United States, and of the Temperate Latitudes of the North American Continent, embracing a full comparison of these, with the Climatology of the Temperate Latitudes of Europe and Asia, and especially in regard to Agriculture, Sanitary Investigations, and Engineering, with Isothermal and Rain Charts for each season, the extreme months and the year, including a summary of the Statistics of Meteorological Observations in the United States, condensed from recent Scientific and Official Publications. By Lorin Blodget, Author of several recent Reports on American Climatology; Member of the National Institute, and of various Learned Societies. Pp. 536 royal 8vo. Philadelphia: J. B. Lippincott & Co. Trubner & Co., London. 1857. From Mr. J. C. Morgan, **bookseller, Exchange Place, N. O.**

The Effects of Climate on Tuberculous Disease: By Edwin Lee, M. R. C. S., London. Being the Dissertation to which the Fiske Fund Prize was awarded June 6, 1855.

The Influence of Pregnancy on the Development of Tubercles: By Edward Warren, M. D., of Edenton, N. C. Being the Dissertation to which the Fiske Fund Prize was awarded June 4, 1856. Pp. 73. 42 8vo. Philadelphia: Blanchard & Lea. 1857. From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.

A Theoretical and Practical Treatise on Midwifery: including the Diseases of Pregnancy and Parturition. By P. Cazeau, Member of the Imperial Academy of Medicine, Adjunct Professor in the Faculty of Medicine of Paris; Chevalier of the supplementary number of the Order of Charles III; Member of the Surgical Society; Member of the Biological Society; of the Medical Society of Emulation; of the Anatomical Society; non-resident Associate of the Medical Society of Bordeaux; correspondent of the Society of Accoucheurs of Berlin; President of the Medical Society of the department of the Seine. Adopted by the Superior Council of Public Instruction, and placed by ministerial decision, in the rank of the classical works designed for the use of Midwife Students in the Maternity Hospital of Paris. Second American from the fifth French edition, by W. R. Bullock, M. D. With 140 illustrations on wood. Pp. 992, 8vo. Philadelphia: Lindsay & Blakiston. 1857. From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.

Proceedings of the Academy of Natural Sciences of Philadelphia. Pp. 101 to 172; also a Notice of some remarks by the late Mr. H. Miller. Philadelphia. Pp. 19. 1857. From the Academy.

Transactions of the Medical Society of the State of Pennsylvania, at its Annual Session, held in Westchester, May, 1857. New Series. Part II. Pp. 218, 8vo, two maps. Published by the Society. Philadelphia. 1857.

The Hand-Book of Practical Receipts for Every-Day Use: A Manual for the Chemist, Druggist, Medical Practitioner, etc., etc. Comprising the Officinal Medicines, their Uses and Modes of Preparation, and Formulæ for Trade Preparations, Mineral Waters, Powders, Beverages, Dietetic Articles, Perfumery, etc.; with a Glossary of Medical and Chemical Terms, and a copious Index. By Thomas F. Branston. First American, from the second revised and enlarged London edition. Pp. 307, 12mo. Philadelphia: Lindsay & Blakiston. 1857. From Mr. J. C. Morgan, bookseller, Exchange Place, N. O.

A Case of Exsection of the entire Os Calcis: By J. M. Carnochan, M. D.; Surgeon-in-Chief to the State Hospital; Professor of Surgery in the New York Medical College, etc. Pp. 8; with two plates. New York: 1857.

The Transactions of the New Hampshire Medical Society, sixty-seventh Anniversary, held at Concord, June 2 and 3, 1857. Pp. 104. Concord: 1857.

Report of an Operation for Removing a Foreign Body from beneath the Heart: By E. S. Cooper, A. M., M. D. Pp. 8. San Francisco: 1857.

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REV. II.—Statistical Report on the Sickness and Mortality of the Army of the United States: Prepared by Richard H. Coolidge, M. D., Assistant Surgeon U. S. A. Senate, U. S.; Ex. doc., No. 96. Pp. 703, quarto. Washington. 1856 421

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BENNET DOWLER, M. D.,

Corresponding Member of the Academy of Natural Sciences of Philadelphia; Fellow and Honorary Vice-President of the Medico-Chirurgical College of the same City; Fellow of the Medical Society of Virginia; Corresponding Member of the Society of Statistical Medicine of New-York; Fellow and a Founder of the Royal Society of Northern Antiquaries of Copenhagen, Fellow of the Royal Medical Society of Copenhagen, Corresponding member of the Academy of Sciences of St. Louis, Permanent Member of the American Medical Association, &c., &c.

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STANFORD CHAILLÉ, A. M., M. D.

NEW ORLEANS:
PRINTED AT THE OFFICE OF THE DAILY DELTA, 76 CAMP-STREET.

To our Subscribers, Correspondents, and Contributors.

A new volume, (the fifteenth) of the New Orleans Medical and Surgical Journal will be commenced with the next number, January, 1858.

The Journal will be published bi-monthly, as heretofore, each number to contain 144 pages.

The Journal will be sent a second time to those who have not received it one month after the time for its appearance, if the subscriber write that he has not received it.

Those once ordering the Journal to be sent to them, will be considered subscribers until they order its discontinuance, which should be at least two months before they wish it discontinued.

No subscription discontinued unless at the option of the proprietors, until all arrears are paid up.

Numbers of the Journal sent as specimens to gentlemen who are not subscribers, will not be continued, unless a written order to continue it is forwarded, with $5 enclosed, for the first year.

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